

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL
RAILROAD AND FINANCIAL NEWSPAPER.

THE NEW AMERICAN INVASION.

[London Ironmonger.]

Once more Hannibal is at our gates. Within the past few days a considerable business appears to have been done in our markets in semi-manufactured Bessemer acid steel of United States manufacture, the prices accepted being in all cases far below those which are being asked for basic German material. The fact that the American sheet bars which have been offered broadcast through the Midlands and South Wales consist of Bessemer acid steel militates greatly against their ready acceptance by tinplate manufacturers, who prefer the softer German basic bars, of which ample supplies have recently been obtainable by them at low prices, but a similar reluctance does not obtain with the galvanized-iron manufacturers, who for their purpose can readily enough roll down the American material to the gauges necessary for use in their particular class of business. A very large trade has already been done, but naturally both sellers and buyers are reluctant to reveal details of the transactions. This much is certain, however, that sales of American sheet bars have been made to works in this country at 78s. c. l. f. Liverpool, and at corresponding figures c. l. f. South Wales, although we gather that sellers are not always disposed to do business on quite such easy terms as those indicated. The immediate result of the knowledge that American material was being offered here was a scare, bordering upon panic, in the German trade, and it is quite possible that the fright which the German manufacturers have sustained at the United States re-entering the market as an exporter of large quantities of semi-manufactured material may seriously jeopardize the formation of the big German Steel Syndicate.

* * * The whole position across the Atlantic gives rise to serious consideration. With the United States already selling material in Europe, it is impossible that Canada can long maintain an attitude of reserve. The only reason why bounty-fed Canadian iron has not been imported here regularly since the first large shipments were made is that expanding trade in America absorbed the whole of Canada's exportable surplus. The United States, however, no longer needs to call upon other countries for her supplies of raw material, for she can more than supply her own wants. Canadian iron and steel producers therefore will need to find some other market for their products, and ere long, unless something extraordinary happens, iron and steel, heavily bounty-fed by a Colonial government, must arrive here in large quantities. Further, owing to the bounty paid by the Canadian government, this Canadian iron and steel can certainly be sold here at a lower price than either American or German, to say nothing of British material. This will add further complications to an already intricate position.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 256.

\$4.00 per year.
Single Copy
10 Cents.

VOL. XLIV.
No. 18.

Baltimore, November 19, 1903.

PRATT & WHITNEY CO.,

HARTFORD, CONN.



REAMERS!

Patent Eccentric Relief Gives
A SMOOTH GLASS SURFACE.

Send to 136 Liberty Street, New York, for New Small Tool Catalogue R.

NEW YORK, 136 Liberty St.

BOSTON, 141 Pearl St.

CHICAGO, 40 S. Clinton St.

ST. LOUIS, C. A. Thompson, 516 N. 3d St.

PHILADELPHIA, 21st and Callowhill Sts.

PITTSBURG, D. L. Macomber, Frick Bldg.

BUCK & HICKMAN, LTD., 2-4 Whitechapel Road, London, Eng.

The Marion Steam Shovel Company,

MANUFACTURERS
OF

Steam Shovels, Ballast Unloaders, Dredges and Ditchers, Etc.

We manufacture machinery in this line in all sizes and suitable for all classes of work. Where large capacity is wanted and where exceedingly hard material is encountered, we call special attention to Model "80" and Model "90." We invite the most careful investigation. For full information address

THE MARION STEAM SHOVEL COMPANY,

Marion, Ohio, U. S. A.,

or GEO. W. BARNHART, Western Manager, No. 4 Sutter Street, SAN FRANCISCO, CAL.

Interstate Corporation Record

contains Subscription List, Charter, By-Laws, First Meeting of Stockholders, First Meeting of Directors, Secretary's Minutes, Certificate, Register, Transfer and Dividend Records, Stock Ledger.

American National Bank Record

No. 1—for Bank's use when newly organized; No. 2—for conversion of state banks into national.

Stock Certificates, Bonds, Seals,
U. S. Lock Seal with Two Keys.

J. W. Middleton & Co., Publishers, Stationers,
167 Dearborn Street, CHICAGO.

Newport News Shipbuilding & Dry Dock Co.

WORKS AT NEWPORT NEWS, VA., ON HAMPTON ROADS.

Equipped with two large Basin Dry Docks of the following dimensions:

	No. 1.	No. 2.
Length on top	616 feet.	827 feet.
Width on top	130 "	162 "
Width on bottom	50 "	80 "
Draught of water over sill	25 "	30 "

Shops are equipped with modern machinery capable of doing the largest work required in ship construction. Tools driven by electricity and compressed air used in constructing and repairing vessels. For estimates and further particulars, address,

C. B. ORCUTT, Pres't,

No. 1 Broadway, New York.

CHAINS, Special Styles To Order.



PROMPT SHIPPERS OF REGULAR GOODS.

The Indiana Chain Works,
Jeffersonville, Ind.



The Best Work is Our Watchword.

This is the largest in the world for you. Our Tanks, Tubs, Vats, Drums and Cylinders are for your lifetime. The Cheap John kind business will not do it for you. Let us know your wants.

G. M. DAVIS & SON, Palatka, Fla.

Branch office—24 Canal Street, New York City.

Call on where you see our "AD."



LUFKIN

Steel Tapes

ARE INDISPENSABLE FOR ACCURATE WORK

MADE BY
The Lufkin Rule Co., - - Saginaw, Mich.

For Sale Everywhere. Send for Catalogue.

CHAIN

Common Proof Coil. Close and Stud Link. Switch, Check and Safety.
"BB," "BBB" and Dredge. Brake and Special.

EMPIRE CHAIN COMPANY,

2929-2939 Smallman St.,

PITTSBURG, PA.

MANUFACTURERS.



CHILLCOTT EVANS CHAIN CO., Allegheny, Pa.

Crane Chains, Log Chains, Tow Chains for River Navigation, Pole and Tongue Chains, Railroad Switch Chains, Wagon Lock Chains, Railroad Stay Chains, Rafting Chains, Railroad Brake Chains, Straight or Twist Link Binding Chain, Close Link, Self-Colored.

K.&J.



ASK THE USERS

K.&J.

of our WHEELBARROWS respecting their substantial structure, durability, proper price, and general satisfaction; or compare them with similar barrows of other makes.

The K. & J. Barrow is the pride of its manufacturer.

KILBOURNE & JACOBS MFG. CO., Columbus, O.

Sta.

etc.

rial

A.

keys.

ners,

N

ORK

ch.

ety.
ial.

A.

ew Chains
d Tongue
Chains,
gon Stay
oad Brake
ink Bind-
Colored.

J.

D.

Classified Index of Articles Advertised

For ALPHABETICAL
INDEX See Page 32

Accountants.
Appraisal & Audit Co. of America, Chicago, Ill.
Audit Co. of New York, The New York, N. Y.

Accumulators.
Bushman Press Co., G. H., Thompsonville, Conn.
Watson-Stillman Co., New York, N. Y.
Wood, H. D. & Co., Philadelphia, Pa.

Acetylene Gas Generators.
Davis Acetylene Gas Co., Elkhart, Ind.

Acid Chambers.
Caroline Iron Works, Baltimore, Md.
Robertson Mfg. Co., James, Baltimore, Md.
Vaik & Murdoch Iron Wks, Charleston, S. C.

Agents. (Manufacturers')
Price, S. M., Machinery Co., Norfolk, Va.

Agricultural Implements.
Farquhar Co., Ltd., A. B., York, Pa.
Hench & Dromgold Co., York, Pa.

Air Brakes.
Westinghouse Air Brake Co., Pittsburg, Pa.
Westinghouse Traction Brake Co., New York, N. Y.

Air Compressors.
American Air Compressor Works, New York, N. Y.
Brown-Cochran Co., Lorain, Ohio.
Hardie-Tynes Mfg. Co., Birmingham, Ala.
Ingersoll-Sergeant Drill Co., New York, N. Y.
McKiernan Drill Co., New York, N. Y.
Price, S. M., Machinery Co., Norfolk, Va.
Rand Drill Co., New York, N. Y.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Sullivan Machinery Co., Chicago, Ill.
Westinghouse Traction Brake Co., New York, N. Y.

Air Motors.
Dake Engine Co., Grand Haven, Mich.

Aluminum Products. (Bars, Sheets, Tubes, etc.)
Pittsburg Reduction Co., Washington, D. C.

Angle Power Transmitter.
Standish, A., Estate, Columbus, O.

Anti-Friction Metals.
Bailey-Lebby Co., Charleston, S. C.
Hertz, Theo., Metal Co., St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.
Van Dusen, E. W., Co., Cincinnati, O.

Antimony.
Hertz, Theo., Metal Co., St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.

Appraisers. (Mfg. Plants, etc.)
Appraisal & Audit Co. of America, Chicago, Ill.
Myers, Finney & Morrison, Richmond, Va.

Architects.
Carlton, Charles W., & Co., Atlanta, Ga.
Iyer, D. H., & Son, Fall River, Mass.
Gamer, Paul, Tampa, Fla.
McMichael & Hunter, Charlotte, N. C.
Hakepence, C. B., & Co., Providence, R. I.
Milburn, Frank E., Columbia, S. C.
Pray, C. A. M., & Co., Providence, R. I.
Shaw, Fred, G., Augusta, Ga.
Sheffield, O. H., & Co., Atlanta, Ga.
Whaley, W. B. S., & Co., Columbia, S. C.
Wheeler & Bunge, Charlotte, N. C.

Architectural Iron Work.
Belmont Iron Works, Philadelphia, Pa.
Buffalo Wire Works Co., Buffalo, N. Y.
Chenapeake Iron Works, Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
Gainesville Iron Works, Gainesville, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Sanford-Day Iron Works, Knoxville, Tenn.
Schreiber, L., & Sons Co., The, Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.

Art Glass.
Capital City Art Glass Works, Atlanta, Ga.

Asbestos.
Southern Pipe Covering Co., Richmond, Va.

Asphalt.
Arncliffe Mfg. Co., Richmond, Va.
Gulf Refining Co., Pittsburg, Pa.

Babbitt Metal. (See Anti-Friction Metal.)

Bags, Rope and Twine.
American Mfg. Co., New York City.
Bailey, John T., & Co., Philadelphia, Pa.
Columbian Cordage Co., Auburn, N. Y.

Balls. (Steel.)
Federal Mfg. Co., Cleveland Ball Factory, Cleveland, O.

Bankers and Brokers.
Continental Trust Co., Baltimore, Md.
Exchange Bank, Macon, Ga.
First National Bank, Richmond, Va.
Flak & Robinson, New York, N. Y.
Georgia Railroad Bank, Augusta, Ga.
Hamilton & Co., Baltimore, Md.
Hibernia Bank & Trust Co., New Orleans, La.
Jernadsky, J. P., & Co., Cincinnati, O.
International Trust Co., Baltimore, Md.
Lisman, F. J., & Co., New York, N. Y.
MacBae, Hugh, & Co., Wilmington, N. C.
Martin & Bro., Augusta, Ga.
McAdoo, Calvin N., Greensboro, N. C.
Merchants & Farmers' Nat'l Bk., Charlotte, N. C.
Merchants National Bank, Baltimore, Md.
Middendorf, J. Wm., & Co., Baltimore, Md.
Palmetto Bank & Trust Co., Columbia, S. C.
Savannah Trust Co., Savannah, Ga.
Tommson, Henry W., Spartanburg, S. C.
Tobey & Kirk, New York, N. Y.
Trak, Spencer, & Co., New York, N. Y.
U. S. Mortgage & Trust Co., New York, N. Y.
Williams, John L., & Sons, Richmond, Va.

Bar Iron and Steel.
Bourne-Fuller Co., Cleveland, O.
Globe Rolling Mill, Cincinnati, O.
Milton Mfg. Co., Milton, Pa.
Old Dominion Iron & Nail Works Co., Richmond, Va.
Pascalle Steel Co., Paterson, N. J.

Belting.
Alexander Bros., Philadelphia, Pa.
American Supply Co., Providence, R. I.
Bailey-Lebby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Boston Belting Co., Boston, Mass.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cameron & Barkley Co., Charleston, S. C.
Columbia Supply Co., Columbia, S. C.
Cotton States Belting & Supply Co., Atlanta, Ga.
Freese, E. M., & Co., Gallion, O.
Gandy Belting Co., Baltimore, Md.
Hartfelder-Garbutt Co., Savannah, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Main Belting Co., Philadelphia, Pa.
Meiers, Joseph, Sons, New York, N. Y.
Miller Oil & Supply Co., Indianapolis, Ind.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Manufacturing Co., New York, N. Y.
Price, S. M., Machinery Co., Norfolk, Va.
Remondale-Hedaway Belting & Hose Co., Newark, N. J.
Rulits Belting Co., St. Louis, Mo.
Teerless Rubber Mfg. Co., Jersey City, N. J.
Whitehurst Belting Co., Baltimore, Md.

Belting. (Chain.)
Bartlett C. O., & Snow Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
Federal Mfg. Co., Cleveland, Ohio.
Jeffrey Manufacturing Co., Columbus, O.
Link-Belt Engineering Co., Nicetown, Phila., Pa.
Taylor Iron & Steel Co., High Bridge, N. J.

Belt Fasteners.
American Supply Co., Providence, R. I.

Belt Lacing.
Rulits Belting Co., St. Louis, Mo.

Belt Lacing Machines.
Diamond Drill & Machine Co., Birdshore, Pa.

Belt Preserver.
Rulits Belting Co., St. Louis, Mo.

Blower. (Argand Steam.)
McClave-Brooks Co., Scranton, Pa.

Blowers. (Pressure.)
Allington & Curtis Mfg. Co., Saginaw, E. S., Mich.
American Blower Co., Detroit, Mich.
Dixie Mfg. Co., Baltimore, Md.
Sturtevant Co., S. F., Boston, Mass.

Blowers and Exhaust Fans.
Allington & Curtis Mfg. Co., Saginaw, E. S., Mich.
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.
Cincinnati Exhaust & Blow Pipe Co., Cincinnati, O.
Dixie Mfg. Co., Baltimore, Md.
Hartford Blower Corp., Hartford, Conn.
Southward Foundry & Machine Co., Phila., Pa.
Stocker, George J., St. Louis, Mo.
Sturtevant Co., S. F., Boston, Mass.

Blue Print Apparatus.
Pittsburg Blue Print Co., Pittsburg, Pa.

Blue Prints.
Myers, Finney & Morrison, Richmond, Va.

Bobbins.
Sherwood Bobbin & Mfg. Co., Greensboro, N. C.

Boilers.
Alexander, S. B., Jr., Co., Charlotte, N. C.
Atlas Engine Works, Indianapolis, Ind.
Babcock & Wilcox Co., New York, N. Y.
Baltimore Engine Co., Baltimore, Md.
Brownell & Co., The, Dayton, O.
Cameron & Barkley Co., Charleston, S. C.
Chicago House & Foundry Co., Chicago, Ill.
Codd Co., E. J., Baltimore, Md.
Cooper, C. G., Co., Mt. Vernon, O.
Farquhar Co., Ltd., A. B., York, Pa.
Frick Co., Waynesboro, Pa.
Gibbs, W. H., & Co., Columbia, S. C.
Hartfelder-Garbutt Co., Savannah, Ga.
Kelsler, N. C., & Co., Philadelphia, Pa.
Martley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Lefel, James, & Co., Springfield, Ohio.
Lombard Iron Works & Supply Co., Augusta, Ga.
McGaffie & Kuntz, Alliance, O.
Mecklenburg Iron Works, Charlotte, N. C.
Murphy, John H., New Orleans, La.
Murray Iron Works Co., Burlington, Iowa.
Petroleum Iron Works Co., Washington, Pa.
Phoenix Iron Works Co., Meadville, Pa.
Price, S. M., Machinery Co., Norfolk, Va.
Robbins, O. A., Charlotte, N. C.
Savannah Locomotive & Car Works, Savannah, Ga.
Schofield, J. S. Sons Co., Macon, Ga.
Smith-Courtney Co., Richmond, Va.
Southern Eng. & Boiler Works, Jackson, Tenn.
Stirling Co., Chicago, Ill.
St. Louis Iron & Machine Works, St. Louis, Mo.
Union Iron Works Co., Selma, Ala.
Vaik & Murdoch Iron Works, Charleston, S. C.
Vogt, Henry, Machine Co., Louisville, Ky.
Walke, Henry, Co., Norfolk, Va.

Boiler Flue Scrapers. (See Flue Scrapers.)

Boiler Tube Cleaners.
Gen Mfg. Co., Pittsburg, Pa.

Bolts, Nuts, Rivets and Studs.
Diamond State Steel Co., Wilmington, Del.
Hamel, John J., & Co., Pittsburg, Pa.
Milton Mfg. Co., Milton, Pa.
Hoopes & Townsend Co., Philadelphia, Pa.
Old Dominion Iron & Nail Works Co., Richmond, Va.

Bonds. (Fidelity.)
Fidelity & Deposit Co., Baltimore, Md.

Bookbinders.
Audel, Theo., & Co., New York, N. Y.

Bottling Outlets.
Vilter Mfg. Co., Milwaukee, Wis.

Brakes.
Westinghouse Traction Brake Co., New York, N. Y.
Westinghouse Air Brake Co., Pittsburg, Pa.

Brass Goods.
Bailey-Lebby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
General Fire Extinguisher Co., Providence, R. I.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Lunkenheimer Co., Cincinnati, N. C.
Patsapo Machine & Supply Co., Baltimore, Md.
Price, S. M., Machinery Co., Norfolk, Va.
Simmons, John, Co., New York City.
Van Dusen, E. W., Co., Cincinnati, O.

Brewers' Machinery.
Vilter Mfg. Co., Milwaukee, Wis.

Brick.
Georgia Vitreous Brick & Clay Co., Augusta, Ga.
Kriegshaber, V. H., Atlanta, Ga.
Pownatan Clay Mfg. Co., Richmond, Va.

Brick Bonds.
Union Brick Bond Co., Pittsburg, Pa.

Brick and Clayworking Machinery and Supplies.
Carnell, George, Philadelphia, Pa.
Fernholz Brick Machinery Co., St. Louis, Mo.
Freese, E. M., & Co., Gallion, O.
Gibbs, W. H., & Co., Columbia, S. C.
Huennekes, H. Co., New York, N. Y.
Schwartz System Brick Co., New York, N. Y.
Seale, J. C., & Sons, Statesville, N. C.
St. Louis Iron & Machine Works, St. Louis, Mo.

Bridges.
Belmont Iron Works, Philadelphia, Pa.
General Supply & Construction Co., New York, N. Y.
Easton Foundry & Machine Co., Easton, Pa.
Frick & Hazen, Baltimore, Md.
Pascalle Steel Co., Paterson, N. J.
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

Buckets. (Coal.)
Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.

Buckets. (Excavators.)
Hayward Co., New York, N. Y.

Marion Steam Shovel Co., Marion, O.
Stuebner, G. L., Iron Works, Long Island City, N. Y.
The Automatic Shovel Co., Lorain, O.

Buckets. (Ore.)
Link-Belt Engineering Co., Nicetown, Phila., Pa.
Pollock, Wm. B., Co., Youngstown, O.
Stuebner, G. L., Iron Works, Long Island City, N. Y.

Building Blocks. (Hollow Concrete.)
Palmer, Harmon S., Hollow Concrete B. B. Co., Washington, D. C.

Building Supplies.
Armitage Mfg. Co., Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Bird, W. M., & Co., Charleston, S. C.
Kriegshaber, V. H., Atlanta, Ga.
Maryland Lime & Cement Co., Baltimore, Md.
Warner, Charles, Co., Wilmington, Del.

Burrs.
Bailey, John T., & Co., Philadelphia, Pa.

Bushings. (Graphite and Bronze.)
Graphite Lubricating Co., Bound Brook, N. J.

Cableways.
Broderick & Bacon Iron Works, St. Louis, Mo.

Contractors. Plant Mfg. Co., Buffalo, N. Y.

Flory, S. Mfg. Co., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.
Trenton Iron Co., Trenton, N. J.

Calcium Chloride.
Carbondale Chemical Co., Carbondale, Pa.

Cannakers' Machinery.
Niagara Machine & Tool Works, Buffalo, N. Y.

Canning Machinery.
Sprague Canning Machinery Co., Chicago, Ill.

Canning Supplies.
Sprague Canning Machinery Co., Chicago, Ill.

Caps. (HAND AND STEAM, ELECTRIC, HORSEPOWER.)
American Ship Windlass Co., Providence, R. I.

Card Clothing.
American Supply Co., Providence, R. I.

Bigelow, W. H., Charlotte, N. C.

Carriage and Wagon Hardware.
Wilcox Mfg. Co., D., Mechanicburg, Pa.

MURRAY WHEELER, Pres.
J. R. LITTLE, Sec. and Treas.Alabama Iron Works,
MILL, STEAMSHIP and
LOCOMOTIVE REPAIRSIron and Brass Castings. Light and
Heavy Forgings. All Kinds of
Machinery Supplies.153, 154, 156 and 158 S. Commerce St.,
MOBILE, ALA.

The Capitol City Art Glass Works

C. V. PINION, GEO. M. JOCHUM,
Proprietors.Manufacturers of
Art Glass, Leaded Glass, Metal Sash and Bevel Plate
Work, Memorial Windows, Church Work, Etc.
All Orders Promptly Filled.
705 Marietta St., ATLANTA, GA.
Long Distance Telephone.


MAKE YOUR OIL DO
DOUBLE WORK.
We guarantee the Cross Oil
Filter will reduce your oil bills
50 per cent. We ship it, you
decide. Pay when satisfied.

THE BURT MFG. CO.
AKRON, OHIO.

--- THE ---
Southern Hotel,South Calvert near Baltimore Street,
BALTIMORE, MD.A strictly high grade European hotel
for gentlemen.
Appointments and service the very best.

RATES:

\$1.00, \$1.50 and \$2.00, with Private Bath.

"NORTON"

GOLD MEDAL,
PARIS, 1900.NORTON
EMERY WHEEL CO.

WORCESTER, MASS.

CHICAGO STORE—25 S. Canal St.
CAREY MCHY. & SUPPLY CO., AGTS., Baltimore, Md.Signs of Good Sand Paper,
THE BULL AND BEAR.

In Use More Than Twenty-Five Years.

Emery, Garnet and Flint Paper
and Emery Cloth.

GLUE, CURLED HAIR AND HAIR FELTING.

BAEDER, ADAMSON & CO., 720 Market Street, Philadelphia.
67 Beekman Street, New York. 143 Milk Street, Boston.
182 Lake Street, Chicago.


KINNEAR'S
STEEL ROLLING DOORS SHUTTERS AND PARTITIONS
ARE DURABLE AND EASILY OPERATED
FOR BUILDINGS OF EVERY CLASS
WRITE FOR CATALOG
THE KINNEAR MFG. CO. COLUMBUS, OHIO.
BOSTON, 85 WATER ST. CHICAGO, 112 CLARK ST. PHILADELPHIA, 101 CHESTNUT ST.

COPPER ANTI-FRICTION METAL

For General Machine
Shop, Mill and
Foundry Use.Runs nicely and is highly recommended
by users everywhere. A trial will con-
vince you of its merits.THEODORE HIERTZ METAL CO.
St. Louis, Mo.

SAND-BRICKS.

Every "Sandbank or Sandhill" is the best place for a "Brickyard." No
need of clay, dryers or kilns to produce a strong, sound, perfect "Face Brick" and at a
lower cost than common clay bricks are usually produced, out of sand and a small percentage
of lime, in ten hours, in any weather, winter or summer.114-118 LIBERTY ST., H. HUENNEKES CO. 114-118 LIBERTY ST.,
NEW YORK. NEW YORK.are erecting and equipping factories of any capacity in any locality of the United States,
Canada, Mexico, Cuba and South America under their patented process known as

"HUENNEKES SYSTEM"

Factories in operation in different sections of the United States and
in other countries. Any size, shape or color of bricks produced under this system
and every brick perfect. Besides factories in operation there are now being erected other fac-
tories under our system from Montreal, Canada, throughout the United States to Monterey,
Mexico. FACTS ARE BETTER PROOFS THAN TESTIMONIALS, and seeing one of our factories
in operation is to believe that our system is a thorough success and a big money maker.
Write for illustrated pamphlet and particulars.

Heintz Steam Trap



It takes five months to make it and test it. But it takes less than thirty days to show you that it will pay for itself in six months.

Try it, therefore, for thirty days, and see how much less your coal bills are. If you like it, buy it. If not, don't. Send for booklet "1".

WILLIAM S. HAINES CO.
136 South Fourth Street, Philadelphia.

Imhauser's Watchman's Time Detectors.



Cannot fail. Write for Catalogue.

Made with 15 or 24 different keys. Contain all the modern improvements. Warranted in every way. Cannot be tampered with without detection. MANUFACTURED BY **E. IMHAUSER & CO., 206 Broadway, New York.**



PROTECTION

The Waggoner Watchman Clock Safeguards Your Property Against Fire or disturbances or indolence of watch men. Shipped on 30 days' FREE trial.

Reduces Insurance

Interesting Booklet Free. It is called "Common Sense for Business Men." We make Sanitary Chemical Fire Pails. **The Waggoner Watchman Clock Co. GRAND RAPIDS, MICHIGAN**

SPRAGUE CANNING MACHINERY COMPANY
42 RIVER ST. CHICAGO, ILL.

The Harrington & King Perforating Co.

PERFORATED METALS

OF EVERY DESCRIPTION. FOR ALL PURPOSES AND FOR SCREENS OF ALL KINDS
CHICAGO - U.S.A.

234 NORTH UNION ST. CHICAGO.

114 LIBERTY ST. NEW YORK.

MAIN OFFICE & WORKS CHICAGO.

THE SAFETY

Car Heating & Lighting Co.

160 Broadway, New York.

CAR LIGHTING

By the Pinch System.

CAR HEATING

By Steam Jacket System, Hot Water Circulation, Return and Direct Steam Systems.

AUTOMATIC STEAM COUPLERS.

WATCHMAN'S CLOCK

LATEST IMPROVED.

Gives an exact record of the Watchman's doings.

WRITE TO

B. NANZ & CO.

127 Duane Street,

NEW YORK

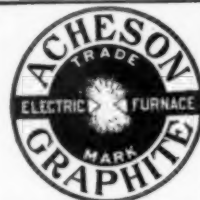
FACTORY TIME CHECKS.

They are being used more and more. Write for our pamphlet, "Time Checks and Their Use." We also make

MERCHANDISE CHECKS.

AMERICAN RAILWAY SUPPLY CO.

Address Dept. J. 24 Park Place, New York.



ACHESON GRAPHITE

Manufactured in the Electric Furnace. Write us for full information regarding the use of this material in high grade protective coatings, lubricating compounds, pipe joint compounds, as foundry facings, for electrotyping purposes, etc.

INTERNATIONAL ACHESON GRAPHITE CO., Niagara Falls, N. Y., U. S. A.

THE ROBINSON OILS

"they lubricate more, and outlast other oils."

High-Grade, Cylinder, Engine, Spindle, Dynamo Oils.

Oils for all types of Machinery.

GREASES.

WM. C. ROBINSON & SON CO.
217 South St., BALTIMORE, MD.

Conveying, Elevating and Power Transmitting Machinery

A COMPLETE LINE OF THE BEST.

Caldwell Helicoid Conveyor!



CALDWELL'S HELICOID

The only perfect spiral conveyor with continuous flight—no laps or rivets.

Seamless Steel Elevator Buckets, Elevator Boots, Rope Transmission Machinery, Sprocket Wheels, Link Belting, Shafting, Belting, Hangers, Pulleys, Gears, Carpullers, Automatic Power Grain Shovels, Wood Split Pulleys, Wire Cloth, Perforated Metal.

Complete Equipments for handling materials of all kinds.

H. W. CALDWELL & SON COMPANY,

Western Avenue, 17th to 18th Streets, CHICAGO, ILL.

Our New Catalogue No. 26 (440 Pages, Cloth Bound), will be sent upon request.

EASTERN SALES AND ENGINEERING OFFICE, 410-95 Liberty St., New York, N. Y.

SOUTH-EASTERN SALES AND ENGINEERING OFFICE, 411 Prudential Bldg., Atlanta, Ga.

SOUTH-WESTERN SALES AND ENGINEERING OFFICE, 202 Trust Bldg., Dallas, Tex.

Classified Index of Articles Advertised

For ALPHABETICAL
INDEX See Page 32

Cars. (Mine, Dump and Logging.)
Apex Equipment Co., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Clark & Hises, Baltimore, Md.
Continental Car & Equipment Co., New York, N. Y.
Heister, N. C., & Co., Philadelphia, Pa.
Hicks, E. J., Chicago, Ill.
Jackson Manufacturing Co., Harrisburg, Pa.
Kilbourne & Jacobs, Mfg. Co., Columbus, O.
Koppel, Arthur, New York City.
Link-Belt Engineering Co., Philadelphia, Pa.
Males Co., The, Cincinnati, O.
Peacock Iron Works, Selma, Ala.
Pollock, Wm. B., Co., Youngstown, O.
Sanford-Day Iron Works, Knoxville, Tenn.
Savannah Loco. Wks. & Supply Co., Savannah, Ga.
Stuebner, G. L., Iron Works, Long Island City, N. Y.
Union Iron Works, Selma, Ala.
Woham-Magor Engine Works, New York, N. Y.

Cars. (Passenger and Freight.) (See Railroad Equipment and Supplies.)

Car Building Machinery.
Fay, J. A., & Egan Co., Cincinnati, O.

Car Couplers and Knuckles.
Chester Steel Castings Co., Philadelphia, Pa.
Latrobe Steel & Coupler Co., Philadelphia, Pa.
Safety Car Heating & Lighting Co., New York, N. Y.

Car Lighting and Heating.
Safety Car Heating & Lighting Co., New York, N. Y.

Car Seals. (Lead.)
Hiers, Theo., Metal Co., St. Louis, Mo.

Car Wheels, Axles and Trucks.
Apex Equipment Co., New York, N. Y.
Continental Car & Equipment Co., New York, N. Y.
Koppel, Arthur, New York City.
Macleary, J. H., & Co., Suffolk, Va.
Peacock Iron Works, Selma, Ala.
Sanford-Day Iron Works, Knoxville, Tenn.
Union Iron Works, Selma, Ala.

Casters and Caster Wheels.
Universal Caster & Fdry. Co., New York, N. Y.

Castings. (Brass and Bronze.)
Alabama Iron Works, Mobile, Ala.
Lunkenheimer Co., Cincinnati, O.
Patasco Machine & Supply Co., Baltimore, Md.
Peopler Bronze Smelting Co., Ltd., Phila., Pa.
Richmond Pattern Works, Richmond, Va.
Ryan, J. J., & Co., Chicago, Ill.
Van Duxen, E. W., Co., Cincinnati, O.

Castings. (Aluminum.)
Pittsburg Reduction Co., Washington, D. C.

Castings. (Iron.)
Alabama Iron Works, Mobile, Ala.
American Ship Windlass Co., Providence, R. I.
Chattanooga Roofing & Fdry. Co., Chattanooga, Tenn.
Dimmick Pipe Co., Birmingham, Ala.
Easton Foundry & Machine Co., Easton, Pa.
Glanorgan Pipe & Foundry Co., Lynchburg, Va.
Kriegshaber, V. H., Atlanta, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Maryland Fdry. & Mch. Co., Baltimore, Md.
Richmond Pattern Works, Richmond, Va.
Rose-Meehan Fdry. Co., Chattanooga, Tenn.
Sanford-Day Iron Works, Knoxville, Tenn.
Tompkins, D. A., Co., Charlotte, N. C.
Valley Iron Works, Williamsport, Pa.
Westbrooks, J. B., Fdry. & Mch. Co., Danville, Va.
Wood, R. D., & Co., Philadelphia, Pa.

Castings. (Malleable Iron and Steel.)
Chester Steel Castings Co., Chester, Pa.
Rose-Meehan Fdry. Co., Chattanooga, Tenn.

Castings. (Steel.)
Chester Steel Castings Co., Chester, Pa.
Diamond Drill & Machine Co., Birdsboro, Pa.
Northmann-Duffie Fdry. Co., Milwaukee, Wis.
Seaboard Steel Casting Co., Chester, Pa.

Ceilings. (Metal.)
Penn Metal Ceiling & Roofing Co., Phila., Pa.

Cement.
American Cement Co., Philadelphia, Pa.
Bird, W. M., & Co., Charleston, S. C.
Carolina Port Cement Co., Charleston, S. C.
Cumber. Hyd. Cement & Mfg. Co., Cumberland, Md.
French, Samuel H., & Co., Philadelphia, Pa.
General Supply & Construction Co., New York, N. Y.
Gilbert, C. M., & Co., Savannah, Ga.
Hartshill Cement Co., Wm. G., Philadelphia, Pa.
Kelley Island Lime & Transport Co., Cleveland, O.
Kriegshaber, V. H., Atlanta, Ga.
Maryland Cement Co., Baltimore, Md.
Maryland Lime & Cement Co., Balto., Md.
Mobile Coal Co., Mobile, Ala.
Ridgmont Cement Mfg. Co., Ironville, Va.
Southeaster Lime & C. Co., Charleston, S. C.
St. Louis Portland Cement Co., St. Louis, Mo.
Warner Co., Chas., Wilmington, Del.

Cement Machinery.
Bradley Pulverizer Co., Boston, Mass.
Kent Mill Co., New York, N. Y.
Osborn Engineering Co., Cleveland, O.
Smith, F. L., & Co., New York, N. Y.

Cement Plant Designers.
Osborn Engineering Co., Cleveland, O.

Chain Hoists.
Spindel, J. G., Reading, Pa.

Chains.
Case Mfg. Co., Columbus, O.
Chilliot-Evans Chain Co., Allegheny, Pa.
Empire Chain Co., Pittsburgh, Pa.
Federal Chain Co., Diamond Chain Fcty., Indianapolis, Ind.
Greenwald Co., I. & E., Cincinnati, O.
Indiana Chain Works, Jeffersonville, Ind.
Jeffrey Mfg. Co., The, Columbus, O.
N. J. Foundry & Machine Co., New York, N. Y.

Chairs. (Invalid.)
Allison, W. D., Co., Indianapolis, Ind.

Chandeliers.
Electric Supply Co., Savannah, Ga.
Folscheck, Charles & Bro., Milwaukee, Wis.

Charcoal. (Filtering.)
Obermayer Co., S. Cincinnati, O.

Charcoal. (Fuel.)
Mathieu, J. A., Georgetown, S. C.

Checks. (Factory, Time and Merchandise.)
American Railway Supply Co., New York, N. Y.

Chemists.
Gallet, Chas., Staunton, Va.
Froehling & Robertson, Richmond, Va.
Pratt Laboratory, N. P., Atlanta, Ga.

Chloride of Calcium.
Carbondale Chemical Co., Carbondale, Pa.

Chucks.
Morris Twist Drill & Machine Co., New Bedford, Mass.
Skinner Chuck Co., New Britain, Conn.
Whitton Machine Co., D. E., New London, Conn.

Clocks. (Watchman's and Town.)
Imhauser & Co., E., New York, N. Y.
Nanz, B., & Co., New York, N. Y.
Waggoner Watchman Clock Co., Grand Rapids, Mich.

Coal.
Alabama Coal & Iron Co., Birmingham, Ala.
Big Brushy Coal & Coke Co., Harrison, Tenn.
Custer, Curran & Bullitt, Philadelphia, Pa.
Davis Coal & Coke Co., Philadelphia, Pa.
Fevet, Bigelow & Brooks, Detroit, Mich.
Main Jellico Mt. Coal Co., Kenesee, Ky.
Mobile Coal Co., Mobile, Ala.
Moore, Edgar M., & Co., Pittsburg, Pa.
Niver, W. K., Coal Co., Baltimore, Md.

Coal-Handling Machinery.
Aultman Co., Canton, O.
Bartlett, C. O., & Snow Co., Cleveland, O.
Hayward Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.
Stuebner, G. L., Iron Works, Long Island City, N. Y.

Coal Tar Products.
Barratt Mfg. Co., Philadelphia, Pa.
Buchanan-Foster Co., Philadelphia, Pa.

Coke.
Alabama Coal & Iron Co., Birmingham, Ala.
Big Brushy Coal & Coke Co., Harrison, Tenn.

Davis Coal & Coke Co., Philadelphia, Pa.
Moore, Edgar M., & Co., Pittsburg, Pa.

Compressed Air Locomotives. (See Locomotive Builders.)

Concentrating Plants.
Green Co., Geo. V., New York, N. Y.

Concrete Block Machinery.
Palmer, H. S., Concrete Building Block Co., Wash., D. C.

Concrete Engineers.
Frank & Hazen, Baltimore, Md.
Gilbreth, Frank B., Boston, Mass.
Osborn Engineering Co., Cleveland, O.
Ransome & Smith Co., New York, N. Y.

Concrete Mixers.
Contractors' Supply & Equipment Co., Chicago, Ill.
Drake Standard Machine Works, Chicago, Ill.
Ransome Concrete Mch. Co., New York, N. Y.

Concrete Steel Construction.
Frank & Hazen, Baltimore, Md.
Ransome & Smith Co., New York, N. Y.
Upton, W. B., Co., Inc., Washington, D. C.

Condensers.
Alberger Condenser Co., New York, N. Y.
McClave, Hamilton & Co., New York, N. Y.
Price, S. M., Machinery Co., Norfolk, Va.
St. Well-Bierce & Smith-Valle Co., Dayton, O.

Contractors. (Paving, etc.)
Robinson Contracting Co., Geo. A., Mobile, Ala.

Contractors and Builders.
Gilbreth, Frank B., Boston, Mass.
Spir, W. E., Washington, D. C.

Contractors' Machinery and Supplies. (See Hoisting Machinery.)
Aultman Co., Canton, O.
Austin Mfg. Co., Chicago, Ill.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Flory, S. Mfg. Co., Bangor, Pa.
Heister, N. C., & Co., Philadelphia, Pa.
Sales Co., The, Cincinnati, O.
Marion Steam Shovel Co., Marion, O.
Municipal Engineering & Contracting Co., Chicago, Ill.
N. J. Foundry & Machine Co., New York, N. Y.
Peacock Iron Works, Selma, Ala.
Sanford-Day Iron Works, Knoxville, Tenn.

Conveying Machinery.
Aultman Co., Canton, O.
Bartlett, C. O., & Snow Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
Flory, S. Mfg. Co., Bangor, Pa.
Hayward Co., New York, N. Y.
Jeffrey Mfg. Co., The, Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Engineering Co., Nictown, Phila., Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
N. J. Foundry & Machine Co., New York, N. Y.
Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.
Robins Conveying Belt Co., New York, N. Y.
Wolf Co., Chambersburg, Pa.

Cooling Towers.
Alberger Condenser Co., New York, N. Y.
Stocker, George J., St. Louis, Mo.

Copper.
Hiers, Theo., Metal Co., St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.

Copperaminites.
Badger, E. B., & Sons Co., Boston, Mass.
McMillan Bros. Co., Mobile, Ala.

Cordage.
American Mfg. Co., New York, N. Y.
Bailey, J. T., & Co., Philadelphia, Pa.
Columbian Cordage Co., Auburn, N. Y.

Cornices. (Metal.)
Chattanooga Roofing & Fdry. Co., Chattanooga, Tenn.
Wulff, W. C., & Co., Louisville, Ky.

Corn-Mill Machinery.
Allis-Chalmers Co., Chicago, Ill.
Brown, A. & F., Co., New York, N. Y.
Nordyke & Marmon Co., Indianapolis, Ind.
Foss Mfg. Co., Springfield, O.
Munson Bros. Co., Utica, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
Starr, B. F., & Co., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Corrugated Iron.
Scalf, W. H., & Sons Co., Pittsburg, Pa.

Cotton Oil.
American Cotton Oil Co., New York, N. Y.
Cotton Oil & Fibre Co., Philadelphia, Pa.
Southern Cotton Oil Co., New York, N. Y.

Cotton Yarns. (Commission Merchants.)
Blythe, Richard A., Philadelphia, Pa.
Buckingham, Paulson & Co., Philadelphia, Pa.

Cotton-gin Machinery.
Carver Cotton Gin Co., E. Bridgewater, Mass.
Gibbes, W. H., & Co., Columbia, S. C.
Tompkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.
Van Winkle Gin & Machine Works, E., Atlanta, Ga.

Cotton-Mill Machinery and Supplies.
American Supply Co., Providence, R. I.
Atherton Machine Co., A. T., Pawtucket, R. I.
Bigelow, W. H., Charlotte, N. C.
Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
Cotton States Belting & Supply Co., Atlanta, Ga.
Draper Co., Hopedale, Mass.
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.
Mason Machine Works, Taunton, Mass.
Robbins, O. A., Charlotte, N. C.
Ruth Automatic Knitting Machine Co., York, Pa.
Sherwood Hobbin & Mfg. Co., Greensboro, N. C.
Tompkins, D. A., Co., Charlotte, N. C.
Washburn, A. H., Charlotte, N. C.
Whitinsville Spin. Ring Co., Whitinsville, Mass.

Cottonseed-Oil Machinery.
American, Chicago, Ill.
Buckeye Iron & Brass Works, Dayton, Ohio.
Burdwell Press Co., G. H., Thompsonville, Conn.
Cushwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., E. Bridgewater, Mass.
Foss Mfg. Co., Springfield, O.
Sprout, Waldron & Co., Muncy, Pa.
St. Well-Bierce & Smith-Valle Co., Dayton, Ohio.
Tompkins, D. A., Co., Charlotte, N. C.
Van Winkle Gin & Machine Works, E., Atlanta, Ga.

Cotton Seed Mch. (Hullers, Separators, etc.)
Carver Cotton Gin Co., East Bridgewater, Mass.

Cottonseed Products.
American Cotton Oil Co., New York, N. Y.
Cotton Oil & Fibre Co., Philadelphia, Pa.
Southern Cotton Oil Co., New York, N. Y.

Covering. (Pipe and Boiler.)
Carey, Philip, Mfg. Co., Lockland, O.
Southern Pipe Covering Co., Richmond, Va.

Covers. (Rollers and Clearers.)
American Supply Co., Providence, R. I.

Cranes. (Traveling, Hand, Power, Hydraulic.)
Case Manufacturing Co., The, Columbus, O.
Hayward Co., New York, N. Y.
Lane Mfg. Co., Montpelier, Vt.
Niles-Bement-Pond Co., New York, N. Y.
Pawling & Harmschfeger, Milwaukee, Wis.

Cranks and Shafts.
Chester Steel Castings Co., Philadelphia, Pa.

Crayons.
Lowell Crayon Co., Lowell, Mass.

Crescoting Works.
International Crescoting & Cons. Co., Galveston, Tex.
West Pascagoula Crescote Wks., W. Pascagoula, Miss.

Cross Arms Boreers & Rounders.
Chattanooga Machinery Co., Chattanooga, Tenn.

Cross Arms and Pins.
Allegheny Pin & Bracket Co., Covington, Va.
Houston & Liggett, Lewisburg, Tenn.
International Crescoting & Cons. Co., Galveston, Tex.
Standard Pole & Tie Co., New York, N. Y.

Cross Ties.
International Crescoting & Cons. Co., Galveston, Tex.
Standard Pole & Tie Co., New York, N. Y.
Wilkins, Van S., Lumber Co., Mobile, Ala.

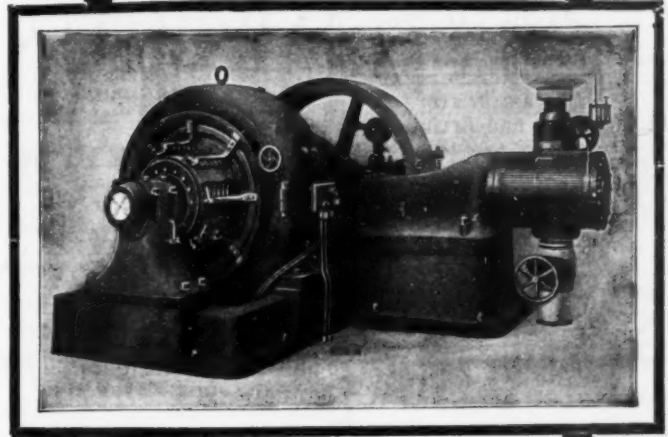
Crushing and Pulverizing Mch.
Austin Mfg. Co., Chicago, Ill.
Bartlett, C. O., & Snow Co., Cleveland, O.
Bradley Pulverizer Co., Boston, Mass.

Simplicity

The simplicity of Northern Electrical Apparatus is no mere "talking point" for salesmen.

This fact is very apparent when "trouble" demands partial or complete disassembling of the machine.

Booklet 631 tells more—sent free.



25

Northern Generators and Motors are built in all standard sizes; in belted and direct connected types (the illustration shows how symmetrical and compact a direct-connected unit can be); to perform in accordance with the specifications of the American Institute.

Northern Electrical Manufacturing Co.

MADISON, WIS., U. S. A.

— ESTABLISHED 1874. —

To make bright, smooth, clean castings, use

702 Pure Ceylon Plumbago

Ask your neighbor about it.

The S. Obermayer Co.

CINCINNATI.

CHICAGO.

PITTSBURG.

Manufacturers

"Everything you need in your Foundry."



Remember This Mark.

Crosby

stands for highest efficiency in Steam Specialties. The kind that do what they are designed for. The up-to-date kind that have the workmanship too.

Write for our trade literature NOW—it's free.

Crosby Steam Gage & Valve Co.

Office and Works, BOSTON, MASS.

93-97 Oliver St., Boston, Mass.
21-23 Lake Street, Chicago.78 John Street, New York.
147 Queen Victoria St., London.

ARCHITECTS, CHEMISTS, CONTRACTORS, ENGINEERS, Etc.

FRANK P. MILBURN, ARCHITECT COLUMBIA, S. C.

Mills, Factories, Warehouses of
Steel-Concrete Construction.
Plans prepared and estimates furnished by
W. B. UPTON CO., (Inc.)
Constructing Engineers,
Washington Loan & Trust Bldg., Washington, D. C.

W. B. SMITH WHALEY & CO.
Mill Engineers and Architects.
Offices—1325 Main Street, Columbia, S. C.
and 1022 Tremont Building, Boston, Mass.

O. H. SHEFFIELD & CO.,
Civil Engineers
and Architects,
518 Austell Bldg., ATLANTA, GA.
Railways, Water Powers, Municipal, Public
Works, Bridges and Buildings.

WHEELER & RUNGE
ARCHITECTS,
Charlotte, N. C.

FRED GORDON SHAW, ARCHITECT

AUGUSTA and COLUMBUS, GA. Special Attention to Heavy Constructions.

Surveys,
Estimates,
Specifications,
Consultation,
Reports,
Superintendence,
Inspection,
Testing.

Myers, Finney & Morrison, Associated Engineers.

CIVIL, ELECTRICAL, MECHANICAL.
E. T. D. Myers, Jr., John H. Finney, Hugh S. Morrison,
Mem. Am. Soc. C. E. As. Mb. A. I. E. E. Jun. Mb. A. S. M. E.
WASHINGTON, D. C. and RICHMOND, VA.
Bond Bldg. 2107½ E. Main St.

Electric Rwy., Power
and Lighting Plants,
Industrial Plants,
Factory Economics,
Modernizing,
Arbitration,
BLUE PRINTS,
all kinds.

Engineering Company of America,

(INCORPORATED.)

74 Broadway, New York.

ENGINEERS

In Civil, Mechanical, Electrical, Hydraulic, Forestry, Metallurgical and Mining Departments,
Plans, Specifications and Supervision of Installations of plants of all kinds.

Examination, Reports and Recommendations on existing properties, with a view to
reducing cost of maintenance and production.
Reports giving the technical and commercial possibilities of Enterprises, Power Plants,
Mines, Smelters, Railways.

Branch Offices.

CHICAGO, ILL., 159 La Salle St.
DENVER, COL.

HENRY E. KNOX, Jr., Southern Manager,
Artisan well and Sub-surface water supply,
Piedmont Building, Charlotte, North Carolina.

MEMBER

AMERICAN SOCIETY MECHANICAL ENGINEERS.

MEMBER

AMERICAN INSTITUTE ELECTRICAL ENGINEERS.

JAMES B. SCOTT, CONSULTING ENGINEER.

607-9 WEST END TRUST BLDG. 808-9 MARYLAND TRUST BLDG. 1108 COMMERCIAL CABLE BLDG.
PHILADELPHIA. BALTIMORE. NEW YORK.

REPORTS—Examinations and expert advice on the earning capacity, construction, operation and
reorganization of public service properties.
SURVEYS—Projected railways and general practice.
PLANS AND SPECIFICATIONS—Complete electric railways, electric lighting systems, steam
and hydraulic power plants, etc.
SUPERINTENDENCE—During construction. Supervision of operating departments.

STEEL FRAME MILL BUILDINGS, STEEL and IRON TANKS and VATS OF EVERY DESCRIPTION



Scaife's Germ-Proof Water Filters,
10 to 10,000 gallons capacity per hour.
WM. B. SCAIFE & SONS CO.
(Founded 1802.)
PITTSBURG, PA.

McMichael & Hunter, ARCHITECTS, CHARLOTTE, N. C.

PAUL GASSER,
ARCHITECT.
Office Jackson Block,
TAMPA, FLORIDA.

E. C. WILEY, M. E.

M. AM. SOC. M. E.
Lynchburg, Va.
Plans prepared for the installation of lighting,
heating and power plants.
Machine Design and Working Draw-
ings a Specialty.

C. A. M. PRARAY & CO.
Mill Architects and Engineers,
PROVIDENCE, R. I.

BARR & ELAM, Electrical Contractors.
Electric and Gas Supplies, Electric Bells, Burglar
Alarms, &c.
GREENSBORO, NORTH CAROLINA.

C. R. MAKEPEACE & CO.
Architects and Mill Engineers.
PROVIDENCE, R. I. Plans, Specifications and Esti-
mates furnished for Cotton & Woolen Mills.

WALTER KENNEDY,

Contracting and
Consulting
Engineer,

Bijou Bldg., 611 Penn Ave., Pittsburg, Pa.
Long Distance Phone, 3174.

P. A. MCCARTHY, C. E.

Civil and Consulting Engineer.
Late Ch. Eng., Eastern Texas R. R. M., Am. Ry.
Eng. & M. of Way Ass'n.
Examinations and Reports; Power Plants, Bridges
and Structures, Municipal Improvements, Water Sup-
ply, Sewerage and Irrigation, Electric Light Plants,
Steam and Electric Railway Location and Construc-
tion.
Telephone 174. DECATUR, TEXAS.

W. H. HARVEY, Engineer and Contractor,

Plans and Specifications for Complete Plants.
Electric, Hydraulic and Steam Installations.
Results Guaranteed.
Suite 380 Randolph Bldg., MEMPHIS, TENN.

COLLIER & BROWN, Electrical & Mechanical Engineers.

Engineering, Designing and Supervising of
Steam, Electric and Hydraulic Plants.
Cotton Mill Construction a Specialty.
917-18-19 Empire Bldg., ATLANTA, GA.

THE HUTTON ENGINEERING CO. LEXINGTON, VA.

Consulting and Contracting
Electrical and Mechanical Engineers.
Central Stations' Electric Railways, Steam and
Power Plants.

Established 1891. Cable Address, "Catlett."

CHARLES CATLETT, Chemist and Geologist,

Formerly of the U. S. Geol. Survey Lab.
Examination and Report on Developed and Un-
developed Properties.
Staunton, Va.
Long Distance Telephone Connection.

The Geo. A. Robinson Contracting Company, Inc.,

General Contractors and Builders.
Mobile, Ala.

N. P. PRATT LABORATORY,
Fitten Building, ATLANTA, GA.
Assays and analyses of all natural and artificial
products. Chemical and mining engineering.

FROEHLING & ROBERTSON,

Successors to Dr. HENRY FROEHLING,
Analytical and Consulting Chemists.
Chemical and Mining Engineers.
17 South 12th St., RICHMOND, VA.

Analyses and assays of ores of every kind, and
of all artificial products. Water analysis, mineral,
sanitary and manufacturing, a specialty. Esti-
mates promptly furnished. Geological and chemi-
cal investigation of mineral properties of the South.

P. BYRNE, MEMBER ENG. ASSN. SOUTH.

Civil, Mechanical and Consulting Engineer.
Makes Surveys, Plans and Specifications for
railroads and bridges, water powers and cotton
mills, city water works, electric light plants and
sewerage, subdivisions of property, surveys and
reports on mineral lands.
Map of Birmingham and vicinity for sale.
1909½ 1st Ave., Birmingham, Ala.

Jos. McWilliams & Co.

Engineers and Contractors.

Louisville, Ky.

Complete Installations for Factories,
Institutions, Hotels and Large
Buildings.

Steam Power Plants, Electric Street
Railway, Power, Lighting and Factory
Transmission Plants, Heating and
Ventilating Apparatus, Ice-Making and
Refrigerating Plants, Machinery and
Supplies.

W. E. SPEIR, Contractor and Builder.

Brick, Stone, Wood, Iron and
Steel Construction.
Office, the Bliss Bldg., 35, 37 & 39 B St., N. W.
WASHINGTON, D. C.

D. H. DYER & SON

Textile Mill Architects
and ELECTRICAL ENGINEERS,
Established over 40 years. Fall River, Mass.

Subscribe to the Manufacturers' Record.
Price \$4 a year, or six months for \$2.

CHAS. W. CARLTON and CO.,

621 Austell Building,
ATLANTA, GA.

ARCHITECTS



PORTLAND
CEMENT
ARE YOU IN
THE
MARKET?

What quality do you desire? Send us particulars. No
order too large for us to fill promptly, and we can deliv-
er anywhere in the world. We know we can give you
interesting figures on High Grade German Cement.

General Supply & Construction Co.

8 and 10 Bridge Street, New York.

TURNTABLES

Bridges—Buildings—Structural Steel
VIRGINIA BRIDGE & IRON COMPANY
ROANOKE, VIRGINIA

Classified Index of Articles Advertised

For ALPHABETICAL INDEX See Page 32.

Cresson Co., Geo. V., New York, N. Y.
 Kent Mill Co., New York, N. Y.
 McLanahan-Stone Machine Co., Hollidaysburg, Pa.
 Raymond Bros. Import Pulp Co., Chicago, Ill.
 Simpson, J. S., & G. F., Brooklyn, N. Y.
 Smith, F. L., & Co., New York, N. Y.
 Sturtevant Mill Co., Boston, Mass.
 Walker & Elliott, Wilmington, Del.
Crushers. (Corn and Cobb.)
 Brown Co., A. & F., New York, N. Y.
 Foon Mfg. Co., The, Springfield, O.
 Munson Bros. Co., Utica, N. Y.
 Wolf Co., The, Chambersburg, Pa.
Crusher Rings.
 Lathrop Steel Co., Philadelphia, Pa.
Cupola Furnaces.
 Obermayer, S. Co., Cincinnati, O.
 Petroleum Iron Works Co., Washington, Pa.
 Pollock, Wm. B., Co., Youngstown, O.
Cutlery. (Workshops.)
 Moehannan Mfg. Co., Philadelphia, Pa.
 Shimer, Samuel J., & Sons, Milton, Pa.
 Smith, H. B., Machine Co., Smithville, N. J.
Dado Heads.
 Huther Bros., Rochester, N. Y.
Designers and Illustrators.
 Alpha Photo-Engraving Co., Baltimore, Md.
 Baltimore-Maryland Engraving Co., Baltimore, Md.
Desks.
 Cubing Co., The, Baltimore, Md.
 Dearborn Desk Co., Birmingham, Ala.
 Himmel, M. L., & Son, Baltimore, Md.
Dies for Sheet-Metal Workers.
 Miller, Chas., & Co., Brooklyn, N. Y.
 Niagara Machine & Tool Works, Buffalo, N. Y.
Dipper Teeth, Lips, etc.
 Taylor Iron & Steel Co., High Bridge, N. J.
Doors. (Steel Rolling.)
 Kinneer Mfg. Co., Columbus, O.
Dredges and Excavators.
 Hardie-Tynes Mfg. Co., Birmingham, Ala.
 Hayward Co., New York, N. Y.
 Males Co., Cincinnati, O.
 Marion Steam Shovel Co., Marion, O.
 The Automatic Shovel Co., Lorain, O.
Drills. (Pneumatic.) (See Drills, Rock & Mining.)
Drills. (Pressing.)
 Sullivan Machinery Co., Chicago, Ill.
Drills. (Rock and Mining.)
 Ingersoll-Sergeant Drill Co., New York, N. Y.
 McKiernan Drill Co., New York, N. Y.
 Rand Drill Co., New York, N. Y.
 Sullivan Machinery Co., Chicago, Ill.
Drills. (Twist.)
 Barnes Co., W. F. & John, Rockford, Ill.
 Morse Twist Drill & Machine Co., New Bedford, Mass.
Drill Presses.
 Bailey-Libby Co., Charleston, S. C.
 Barnes Co., W. F. & John, Rockford, Ill.
 Barr, H. G., Worcester, Mass.
 Bickford Drill & Tool Co., The, Cincinnati, O.
 Price, S. M., Machinery Co., Norfolk, Va.
 Walke, Henry Co., Norfolk, Va.
Dry-Docks.
 Baltimore Shipbuilding & Dry Dock Co., Balto., Md.
 Newport News Shipbuilding & D. D. Co., Newport News, Va.
Drying Machinery.
 American Blower Co., Detroit, Mich.
 Andrews & Johnson Co., Chicago, Ill.
 Bailey-Libby Co., The, Charleston, S. C.
 Bartlett, C. O., & Snow Co., Cleveland, O.
 Jeffrey Mfg. Co., The, Columbus, O.
 Ruggles-Coles Engineering Co., New York, N. Y.
 Sturtevant Co., B. F., Boston, Mass.
Dry-Kilns.
 American Blower Co., Detroit, Mich.
 Sturtevant Co., B. F., Boston, Mass.
 Union Iron Works Co., Selma, Ala.
Dumbwaiters.
 Spedel, J. G., Reading, Pa.
Dust-Collecting System.
 Allington & Curtis Mfg. Co., Saginaw, Mich.
 Cincinnati Exhaust & Blow Pipe Co., Cincinnati, O.
 Hixie Mfg. Co., Baltimore, Md.
 Hartford Blower Co., Hartford, Conn.
Dyeing Machinery.
 Fairmount Machine Co., Philadelphia, Pa.
Dynamos and Motors.
 Alexander, Jr., Co., S. B., Charlotte, N. C.
 Commercial Electric Co., Indianapolis, Ind.
 Crocker-Wheeler Co., Amper, N. J.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 Florida Electric Co., Jacksonville, Fla.
 Electrical Material Co., Baltimore, Md.
 General Electric Co., Schenectady, N. Y.
 Guarantee Electric Co., Chicago, Ill.
 Johnson, Chas. F., Buffalo, N. Y.
 Kentucky Electric Co., Owensboro, Ky.
 Northern Electrical Mfg. Co., Madison, Wis.
 Piedmont Electric Co., Asheville, N. C.
 Ridgway Dynamo & Engine Co., Ridgway, Pa.
 Standard Electric Co., Norfolk, Va.
 Triumph Electric Co., Cincinnati, O.
 Wesco Supply Co., St. Louis, Mo.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Educational Institutions.
 Georgia School of Technology, Atlanta, Ga.
Electors.
 Ohio Injector Co., Wadsworth, O.
Electric Collectors.
 Alexander, Jr., Co., S. B., Charlotte, N. C.
 Barr & Elam, Greensboro, N. C.
 Electrical Material Co., Baltimore, Md.
 Electric Supply Co., Savannah, Ga.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 Harvey, W. H., Memphis, Tenn.
 MacAfee, John Blair, Philadelphia, Pa.
 McWilliams, Jos., & Co., Louisville, Ky.
 Northern Elec. Mfg. Co., Madison, Wis.
 Scott, James B., Baltimore, Md.
 Standard Electric Co., Norfolk, Va.
 Tompkins, D. A., Co., Charlotte, N. C.
 Upton, W. B., Co., Washington, D. C.
 Wesco Supply Co., St. Louis, Mo.
Electrical Instruments.
 Electrical Material Co., Baltimore, Md.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 Northern Electric Mfg. Co., Madison, Wis.
 Piedmont Electric Co., Asheville, N. C.
 Standard Electric Co., Norfolk, Va.
 Wesco Supply Co., St. Louis, Mo.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Electric Mchys. (Generators, Motors etc.)
 Alexander, Jr., Co., S. B., Charlotte, N. C.
 Commercial Electric Co., Indianapolis, Ind.
 Crocker-Wheeler Co., Amper, N. J.
 Electrical Material Co., Baltimore, Md.
 Electric Supply Co., Savannah, Ga.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 General Electric Co., Schenectady, N. Y.
 N. J. Foundry & Machine Co., New York, N. Y.
 Northern Electrical Mfg. Co., Madison, Wis.
 Piedmont Electric Co., Asheville, N. C.
 Ridgway Dynamo & Engine Co., Ridgway, Pa.
 Standard Electric Co., Norfolk, Va.
 Tompkins, D. A., Co., Charlotte, N. C.
 Triumph Electric Co., Cincinnati, O.
 Upton, W. B., Co., Washington, D. C.
 Wesco Supply Co., St. Louis, Mo.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Electric Power.
 Weaver, W. T., Power Co., Asheville, N. C.
Electric Railway Equipment.
 Alexander, Jr., Co., S. B., Charlotte, N. C.
 Electrical Material Co., Baltimore, Md.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 General Electric Co., Schenectady, N. Y.
 Northern Electrical Mfg. Co., Madison, Wis.
 Standard Electric Co., Norfolk, Va.
 Triumph Electric Co., Cincinnati, O.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
 Wesco Supply Co., St. Louis, Mo.

Electrical Repairs.

Alexander, Jr., Co., S. B., Charlotte, N. C.
 Electric Supply Co., Savannah, Ga.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 Guarantee Electric Co., Jacksonville, Fla.
 Kentucky Electric Co., Owensboro, Ky.
 Standard Electric Co., Norfolk, Va.
 Wesco Supply Co., St. Louis, Mo.

Electrical Supplies.

Alexander, Jr., Co., S. B., Charlotte, N. C.
 Barr & Elam, Greensboro, N. C.
 Electrical Material Co., Baltimore, Md.
 Electric Supply Co., Savannah, Ga.
 Ewing-Merkle Electric Co., St. Louis, Mo.
 Florida Electric Co., Jacksonville, Fla.
 General Electric Co., Schenectady, N. Y.
 Guarantee Electric Co., Chicago, Ill.
 Kentucky Electric Co., Owensboro, Ky.
 Northern Electrical Mfg. Co., Madison, Wis.
 Piedmont Electric Co., Asheville, N. C.
 Standard Electric Co., Norfolk, Va.
 Sturtevant Co., B. F., Boston, Mass.
 Triumph Electric Co., Cincinnati, O.
 Wesco Supply Co., St. Louis, Mo.

Electric Locomotives.

(See Locomo. Bldrs.)
 Baldwin Locomotive Works, Philadelphia, Pa.
Electric Trucks.
 American Type Foundry Co., Baltimore, Md.
 Spencer & Hall, Baltimore, Md.

Elevators.

American Machine Co., Louisville, Ky.
 Bartlett, C. O., & Snow Co., Cleveland, O.
 Bates, James, Sons, Baltimore, Md.
 Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
 Fount Le Roy & Co., Baltimore, Md.
 Florida Electric Co., Jacksonville, Fla.
 Haven Elevator Co., Cincinnati, O.
 Kinkadee & Liggett, Columbus, O.
 Link-Belt Engineering Co., Philadelphia, Pa.
 Louisville Elevator Co., Louisville, Ky.
 Maryland Foundry and Machine Co., Baltimore, Md.
 Morse, Williams & Co., Philadelphia, Pa.
 Otis Elevator Co., New York, N. Y.
 Parkhurst Bros. & Co., Indianapolis, Ind.
 Park Mfg. Co., Charlotte, N. C.
 Plunger Elevator Co., Worcester, Mass.
 Reedy, J. W., Elevator Mfg. Co., Chicago, Ill.
 Spedel, J. G., Reading, Pa.
 Westbrooks, J. B., Fdry. & Mch. Co., Danville, Va.

Elevator Buckets.

Caldwell, H. W., & Son Co., Chicago, Ill.
 Greenwald Co., I. & E., Cincinnati, O.
 Jeffrey Mfg. Co., Columbus, O.
 Link-Belt Engineering Co., Philadelphia, Pa.
 Taylor Iron & Steel Co., High Bridge, N. J.

Elevator Enclosures and Cabs.

Bolles, J. E., Iron & Wire Works, Detroit, Mich.
 Buffalo Wire Works Co., Buffalo, N. Y.
 Dufur & Co., Baltimore, Md.
 Ludlow-Saylor Wire Co., The, St. Louis, Mo.
 Meyers Mfg. Co., The, Fred J. Hamilton O.

Elevator Ropes.

(See Wire Ropes.)
 Emery.
 Carborundum Co., The, Niagara Falls, N. Y.

Emery Wheels.

(See Grinding and Polishing Machinery.)
Employment Bureaus.
 Engineering Agency, Chicago, Ill.

Engineers.

(Electric, Civil, Consulting, Contracting, Mechanical and Mining, etc.)
 Byrne, P., Birmingham, Ala.
 Collier & Brown, Atlanta, Ga.
 Consolidated Air Lift Co., Washington, D. C.
 Crocker-Wheeler Co., Amper, N. J.
 Dyer, D. H., & Sons, Fall River, Mass.
 Engineering Co. of America, New York, N. Y.
 Florida Electric Co., Jacksonville, Fla.
 Frink & Hazen, Baltimore, Md.
 Force, John P., Columbus, Ohio.
 Gilbreth, Frank B., Boston, Mass.
 Harvey, W. H., Memphis, Tenn.
 Hutton Engineering Co., Lexington, Va.
 Kennedy, Walter, Pittsburgh, Pa.
 Ludwig & Co., Atlanta, Ga.
 MacAfee, John Blair, Philadelphia, Pa.
 McCarthy, P. A., Decatur, Tex.
 McWilliams, Jos., & Co., Louisville, Ky.
 Municipal Engineering & Contracting Co., Chicago, Ill.
 Myers, Finney & Morrison, Richmond, Va.
 Northern Elec. Mfg. Co., Madison, Wis.
 Osborn Engineering Co., Cleveland, O.
 Passaic Steel Co., Paterson, N. J.
 Pearson, R. P., Parsons, W. Va.
 Pratt Laboratory, N. P., Atlanta, Ga.
 Railways & Light Co. of America, Balto., Md.
 Reid & Alcott, Burlington, N. J.
 Robinson Contracting Co., Geo. A., Mobile, Ala.
 Sarle, O. Perry, Providence, R. I.
 Scott, Jas. B., Baltimore, Md.
 Sheffield, O. H., & Co., Atlanta, Ga.
 Smith & Co., F. L., New York, N. Y.
 Standard Electric Co., Norfolk, Va.
 Tompkins, D. A., Co., Charlotte, N. C.
 Trafford, E. W., Richmond, Va.
 Upton, W. B., Co., Washington, D. C.
 Virginia Bridge & Iron Co., Roanoke, Va.
 Wiley, E. C., Lynchburg, Va.
 Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.

Engines.

Alexander, Jr., Co., S. B., Charlotte, N. C.
 Allis-Chalmers Co., Chicago, Ill.
 American Engine Co., Bound Brook, N. J.
 Atlas Engine Works, Indianapolis, Ind.
 Ball Engine Co., The, Erie, Pa.
 Ball & Wood Co., New York, N. Y.
 Baltimore Engine Co., Baltimore, Md.
 Bates Machine Co., Joliet, Ill.
 Brown Corlies Engine Co., Corlies, Wis.
 Brownell & Co., The, Dayton, O.
 Cameron & Barkley Co., Charleston, S. C.
 Chicago House Wrecking Co., Chicago, Ill.
 Cooper, C. & G., Co., Mt. Vernon, O.
 Duke Engine Co., Grand Haven, Mich.
 Erie Pump & Engine Co., Erie, Pa.
 Farquhar Co., A. & L., York, Pa.
 Fishkill Landing Machine Co., Fishkill, N. Y.
 Frick Co., Waynesboro, Pa.
 Gibben, W. H., & Co., Columbus, S. C.
 Greenwald Co., I. & E., Cincinnati, O.
 Hardie-Tynes Mfg. Co., Birmingham, Ala.
 Harrisburg Fdry. & Machine Wks., Harrisburg, Pa.
 Hartfelder-Garbutt Co., Savannah, Ga.
 Heider, N. C., & Co., Philadelphia, Pa.
 Hill, Wm. E., & Co., Kalamazoo, Mich.
 Hoover, Owens & Reuschler Co., Hamilton, O.
 Houston, Stanwood & Gamble Co., Cincinnati, O.
 Leffel, James, & Co., Springfield, O.
 Lidgerwood Mfg. Co., New York, N. Y.
 Lombard Iron Works & Supply Co., Augusta, Ga.
 Price, S. M., Machinery Co., Norfolk, Va.
 McClave, Hamilton & Co., New York, N. Y.
 Murray Iron Works Co., Burlington, Iowa.
 Mecklenburg Iron Works, Charlotte, N. C.
 Pennsylvania Iron Works, Philadelphia, Pa.
 Phoenix Iron Works Co., Meadville, Pa.
 Ridgway Dynamo & Engine Co., Ridgway, Pa.
 Robbins, O. A., Charlotte, N. C.
 Savannah Locomotive & Car Works, Savannah, Ga.
 Schofield, J. S., Sons Co., Macon, Ga.
 Shepherd Engineering Co., Franklin, Pa.
 Smith-Courtney, Cincinnati, O.
 Southern Eng. & Boiler Works, Jackson, Tenn.
 Southwark Foundry & Machine Co., Philadelphia, Pa.
 St. Louis Iron & Machine Works, St. Louis, Mo.
 Strait, H. N., Mfg. Co., Kansas City, Kan.
 Sturtevant Co., B. F., Boston, Mass.
 Tod, Wm., Co., Youngstown, O.
 Tompkins, D. A., Co., Charlotte, N. C.
 Union Iron Works Co., Selma, Ala.
 Valk & Murdoch Iron Works, Charleston, S. C.

FUEL BURNING APPLIANCES.

ROCKWELL ENGINEERING CO.,
 26 Cortlandt Street, NEW YORK.

OIL FURNACES
 FOR EVERY
 PURPOSE.

Concrete Steel Construction,
Ransome System.

FRINK & HAZEN,

CONSULTING AND CONTRACTING ENGINEERS,
711 Union Trust Building, Baltimore, Md.

Buildings—STEEL—Bridges.

GEO. W. KNOX, M. A. I. E. E.

JAS. Z. GEORGE, A. M. A. I. E. E.; J. M. A. S. M. E.

KNOX, GEORGE & CO.

Consulting Engineers.

Design Build and Operate Electric Railway,
 Lighting and Power Transmission Systems;
 Gas Plants, Pumping Plants for Water Supply,
 Drainage and Irrigating Systems, etc.

OFFICES

Fisher Building, CHICAGO.

Tulane-Newcomb Building, NEW ORLEANS

FRANK B. GILBRETH, General Contractor.

WE SOLICIT CONTRACTS WHERE IT IS DESIRED TO
 PLACE ALL BRANCHES OF THE ENTIRE PROJECT UNDER
 ONE CONTRACT, AND WHERE THE TIME FOR
 COMPLETION IS LIMITED. WE MAINTAIN A PERMANENT
 FORCE OF CIVIL, MECHANICAL AND CONCRETE
 ENGINEERS, AND THE LARGEST EQUIPMENT OF CONCRETE
 MACHINERY. WITH EXPERTS AT THE HEAD
 OF EACH DEPARTMENT, WE BELIEVE THAT WE ARE
 GIVING THE BEST RESULTS OBTAINABLE.

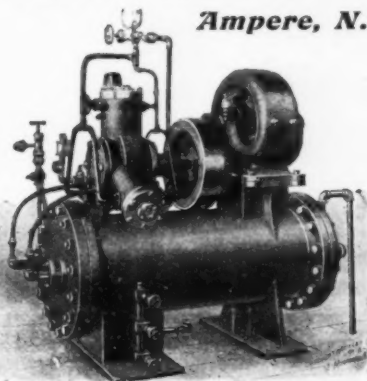
BOSTON.

NEW YORK.

LONDON.

Crocker-Wheeler Company,

Ampere, N. J.



Motors

for the drive of
 all kinds of machines and tools.

Write for our
 bulletins.

Branch Offices in
 all Large Cities.

CHATTANOOGA ROOFING & FOUNDRY CO.

Formerly CHATTANOOGA STEEL ROOFING CO.

Manufacturers of all kinds of

ROOFING AND CASTINGS,

Store Fronts, Columns, Lintels, Sills,

GALVANIZED IRON WORK,

Awnings, Skylights and Cornice.

PATENT METAL SHINGLES, Tin and Galvanized.

All Styles Steel and Tin Roofing,

Drip Pans, Stove Pipe, Elbows, etc.

CHATTANOOGA, TENNESSEE.



E. W. TRAFFORD,

Consulting Electrical Engineer,

(Member Am. Inst. Elect. Engrs.)

27 Chamber of Commerce,

RICHMOND, VA.

Design and Supervision of Lighting,

Power and Railway Developments.

JOHN P. FORCE,
Sanitary and Hydraulic Engineer.

Water Works, Sewerage and Sewage
 Disposal. Surveys, Estimates, Plans,
 Specifications and Reports. Construction
 Superintended.

41-42 Dispatch-Bulter Block, COLUMBUS, O.

LUDWIG & CO.
Consulting Engineers.

Specialty:
 POWER PLANTS,
 Steam, Electric, Hydraulic.

Condensers and
 Cooling Towers.

813 Empire Bldg.
 ATLANTA, GA.

O. PERRY SARLE,

Civil Engineer,

146 Westminster St., Providence, R. I.

Development of Water Powers. Designs for
 Power Stations. Masonry Dams. Valuation of
 Water Powers. Water Supply. Sewerage.

JOHN BLAIR MacAFEE

The building and equipment of steam and electric
 railways, power plants and lighting systems.
 Preliminary engineering with estimates.
 Reports on properties in operation.

Harrison Bldg., PHILADELPHIA.

Old Dominion Portland Cement.

W. H. G. HARTRANFT CEMENT CO.

MANUFACTURED BY
VIRGINIA PORTLAND CEMENT CO.
CRAIGSVILLE, VA.

SOLE SELLING AGENT,

Real Estate Trust Building,
PHILADELPHIA, PA.



Carolina Portland Cement Co.

CHARLESTON, S. C. BIRMINGHAM, ALA.

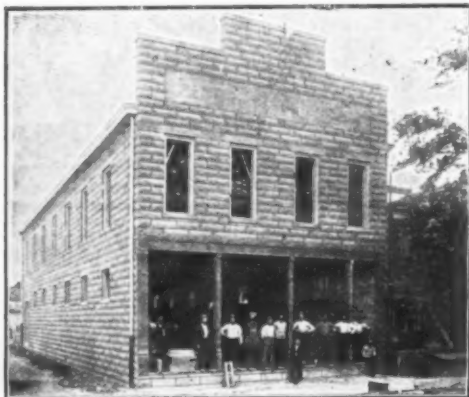
Sole Selling Agents for North and South Carolina, Florida and Georgia. Lime, Rosendale Cement, Louisville Cement, Etc.
Full stocks of Portland Cement, Rosendale Cement and Plaster at Norfolk, Wilmington, Charleston and Savannah.

Maryland Lime & Cement Co.

217-219 Bowly's Whf. BALTIMORE, MD.

DISTRIBUTORS:—Lehigh Portland Cement—Rosendale Cement—Savage, Union, Somerset Fire Brick—Lime—Vitrified Salt-Glazed Sewer Pipe—Cal. Plaster—Limoid—Roofing Felts—Flue Linings—Chimney Tops, etc.

REVOLUTION IN BUILDING METHODS



Erected for G. W. Bement, Terra Haute, Ind.

Hollow Concrete Building Blocks.

Give Vertical Flues within that produce the best Ventilation, retard rain and moisture and are positive non-conductors of heat and cold.

These bricks are light, strong and hygienic. No danger of building too high with them. All to fit without any cutting needed.

Machines for making the above turn out 2400 to 3000 cubic feet per day in hollow blocks.

ABSOLUTELY FIRE, WATER, FROST AND VERMIN-PROOF.
Write for full information.

Harmon S. Palmer
Hollow Concrete Building Block Co.
WASHINGTON, D. C.

WARNING!
Buildings erected with these patented blocks are subject to royalty and mechanics' lien, if same is not settled, unless parties erecting buildings secure their licenses from the Harmon S. Palmer Hollow Concrete Building Block Company, or their authorized agents.

THE OLD RELIABLE

"Giant" Portland Cement,

Used exclusively on the NIAGARA FALLS TUNNEL and POWER HOUSE of the Niagara Falls Power Co. After five years the tunnel was recently inspected—32,400,000 cubic feet of water had rushed through every hour for five years. From one end of the tunnel to the other it was as strong as the day when it was finished. Not one of the 19,000,000 bricks used were out of place. The verdict was: "Practically absolutely perfect."

AMERICAN CEMENT CO.

22 S. 15th Street, Philadelphia, Pa.

LESLEY & TRINKLE CO.
22 S. 15th Street,
Philadelphia, Pa.

Agencies:

UNITED BUILDING MATERIAL CO.
13-21 Park Row, New York.
101 Milk St., Boston, Mass.

LEHIGH Portland Cement



High Tensile Strength, Finely Ground,
Light and Uniform in Color.

Southern and Western Distributors:

THE KELLEY ISLAND LIME
& TRANSPORT CO.
CLEVELAND, OHIO.

Equal to many PORTLAND Brands of Cement.

LABORATORY TESTS OF

Cumberland Hydraulic Cement.

FINESS.

Sieve.	50 mesh.	100 mesh.	200 mesh.
Finess.....	98	85	75

TENSILE STRENGTH.

Average of highest and lowest tests.

Time.	Neat.	2 parts sand.	3 parts sand.
24 hours.....	153	200	150
7 days.....	275	300	200
28 days.....	300	350	250
60 days.....	325	300	225
90 days.....	375	350	250
120 days.....	400	425	300
365 days.....	475	525	400

Bolting test, 24 hours, good.

The Cumberland Hyd. Cement & Mfg. Co.

P. O. Box 264,

CUMBERLAND, MD.

RUGGLES-COLES

DRYERS

FOR

Phosphates, Slag, Coal,
Marl, Clay, Etc.

RUGGLES-COLES
ENGINEERING CO.

CHICAGO.

NEW YORK.

V. H. KRIEGSHABER,

Manufacturer and dealer in
BUILDING SUPPLIES.

Lime, cement, fire brick, pressed brick, sewer pipe,
marble tile, wrought and cast iron work, terra cotta.

Office, No. 6 Austell Bldg., Atlanta, Ga.

Carload and mixed car shipments a specialty.

IMPORTERS

PORTLAND CEMENT.

C. M. GILBERT & CO., SAVANNAH, GA.



ROYAL, MUNICIPAL, AMERICAN PORTLANDS.

Warner's Hydraulic, Warner's Improved Hydraulic,
Lime, "Limoid" Plaster, Sewer Pipe, etc.

CHARLES WARNER COMPANY,
New York, Wilmington, Philadelphia.

THE FINEST CEMENTS



Lehigh

Brand

Dexter

Brand

SOUTHEASTERN
LIME & CEMENT
CO.

Charleston, S. C.

Southern Distributors



Rosendale Cement.



CHEAPEST

and most

RELIABLE

for

SOUTHERN

Work.

50 Years' Record.

500 Bbls. Daily.

RIDGEMONT CEMENT MFG. CO.

Ironville, Va.

CEMENTS

William M. Bird & Co.,

CHARLESTON, S. C.

Manufacturers' Agents for

American, Rosendale and Portland
Cements and Importers of Best
Brands of Foreign.

Full Stocks of

Oils, Paints and Builders' Supplies.

THE OHIO FIRE BRICK CO.

OAK HILL, OHIO.

Manufacturers of

High-Grade Fire Brick

for Blast Furnaces.

Ask us for delivered prices.

The Powhatan Clay Mfg. Co.,

RICHMOND, VA.

White, Buff, Speckled, Gray, Red and
Iron Spot Bricks.

In All Sizes and Shapes.

FIRE BRICK.

Simple—Portable—Efficient—Economical—Durable.

Ransome Concrete MIXERS



To Discharge,
"Simply Reverse The Chute"

H. Channon Co., Chicago.
James Cooper, Montreal, Can.

Can be charged in 10 seconds from our
Steel Charging Hopper. Will mix in 30
seconds. Will discharge in 15 seconds.
No movable parts within the Drum.

Ransome Concrete Machinery Co.

Concrete Appliances,
Twisted Steel, Etc.

11 Broadway, New York.

Our Agents Carry Stock:

Norman B. Livermore Co., San Francisco.
George Cooper, Pittsburg, Pa.



Classified Index of Articles Advertised

For ALPHABETICAL INDEX See Page 32.

Valley Iron Works, Williamsport, Pa.
Viller Mfg. Co., Milwaukee, Wis.
Vogt, Henry, Machine Co., Louisville, Ky.
Waite, Henry, Co., Norfolk, Va.
Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.
Westinghouse Machine Co., Pittsburgh, Pa.
Engines. (Gas, Gasoline and Kerosene.)
Blakeslee Mfg. Co., The, Birmingham, Ala.
Brown-Cochran Co., Lorain, O.
Columbus Machine Co., Columbus, O.
Gibbs, W. H., & Co., Columbia, S. C.
Otto Gas Engine Works, Philadelphia, Pa.
Pennsylvania Iron Works, Philadelphia, Pa.
Price, S. M., Machinery Co., Norfolk, Va.
Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.
Westinghouse Machine Co., Pittsburgh, Pa.
Engines. (Hydraulic Pumping.)
Niagara Hydraulic Engine Co., Chester, Pa.
Engravers.
Alpha Photo-Engraving Co., Baltimore, Md.
Baltimore-Maryland Engraving Co., Baltimore, Md.
Middleton, J. W., & Co., Chicago, Ill.
Excelsior Machines.
American Excelsior & Machine Co., Baltimore, Md.
Gibbs, W. H., & Co., Columbia, S. C.
Exhaust Heads.
Burt Mfg. Co., Akron, O.
Expansion Belts.
N. J. Foundry & Machine Co., New York, N. Y.
Fans. (Electric.)
Electrical Material Co., Baltimore, Md.
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.
Fans. (Ventilating.) [See Blowers, Exhaust Fans.
Feed-Water Heaters and Purifiers.
Bates Machine Co., Joliet, Ill.
Gibbs, W. H., & Co., Columbia, S. C.
Green Fuel Economizer Co., Mattawan, N. Y.
Greenwald Co., I. & E., Cincinnati, O.
Kelley, Benj. F., & Son, New York, N. Y.
McAdoo, Thomas, Philadelphia, Pa.
National Pipe Bending Co., New Haven, Conn.
Petroleum Iron Works Co., Washington, Pa.
Scales, Wm. B., & Sons, Co., Pittsburgh, Pa.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Webster & Co., Warren, Camden, N. J.
Felted.
Baader, Adamson & Co., Philadelphia, Pa.
Fencing. (Iron, Steel, Wire.)
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Buffalo Wire Works Co., Buffalo, N. Y.
Dufur & Co., Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.
Fertilizer Machinery. [See Phosphate Mch.]
Files.
Barnett Co., G. & H., Philadelphia, Pa.
Miller Oil & Supply Co., Indianapolis, Ind.
Nicholson File Co., Providence, R. I.
Filler. (Iron.)
Obermayer, S. C., Cincinnati, O.
Wisconsin Graphite Co., Pittsburgh, Pa.
Filters. (Water.)
Scales, Wm. B., & Sons, Co., Pittsburgh, Pa.
Filters. (Oil.)
Burt Mfg. Co., The, Akron, O.
Caplier Co., Philadelphia, Pa.
Filter Presses.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Fire-Bricks.
Carolina Portland Cement Co., Killian, S. C.
Georgia Vitrified Brick & Clay Co., Augusta, Ga.
Kriegshaber, V. H., Atlanta, Ga.
Maryland Lime & Cement Co., Balto., Md.
Obermayer, S. C., Cincinnati, O.
Ohio Fire Brick Co., Oak Hill, O.
Pomona Terra Cotta Co., Pomona, N. C.
Powhatan Clay Mfg. Co., Richmond, Va.
Stevens, R., Sons Co., Macon, Ga.
Fire Extinguishers.
Badger Fire Extinguisher Co., Boston, Mass.
General Fire Extinguisher Co., Providence, R. I.
Fire Escapes.
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Flexible Joints.
Moran Flexible Joint Co., Louisville, Ky.
Flooring. (Hardwood.)
Adams, J. M., Baltimore, Md.
Forman, Thomas, Co., Detroit, Mich.
Wilcox, The T., Chicago, Ill.
Wilkins, Van S., Lumber Co., Mobile, Ala.
Flour and Grist Mill Machinery and Supplies.
Allis-Chalmers Co., Chicago, Ill.
Bartlett, C. O., & Snow Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
DeLoach Mill Mfg. Co., Atlanta, Ga.
Gibbs, W. H., & Co., Columbia, S. C.
Nordyke & Marmon Co., Indianapolis, Ind.
Sprout, Waldron & Co., Muncy, Pa.
Sarr, B. F., & Co., Baltimore, Md.
Wolf Co., Chambersburg, Pa.
Fine Scrapers. (For Rollers.)
Gem Mfg. Co., Pittsburgh, Pa.
Foot Valves.
Newman Mfg. Co., New York, N. Y.
Forges.
Starbuck Co., B. F., Boston, Mass.
Forgings.
Alabama Iron Works, Mobile, Ala.
Wilcox, D., Mfg. Co., Mechanicsburg, Pa.
Foundry Equipment and Supplies.
Obermayer, S. C., Cincinnati, O.
Friction Clutches.
Brown, A. & F., New York, N. Y.
Minster Machine Co., Minster, O.
Fuel Economizers.
Green Fuel Economizer Co., Mattawan, N. Y.
Fuel Oil Equipment.
Petroleum Iron Works Co., Washington, Pa.
Rockwell Engineering Co., New York, N. Y.
Furnace Builders.
Kennedy, Walter, Pittsburgh, Pa.
Means & Fulton Iron Works, Birmingham, Ala.
Furnaces. (Blair.)
Pollock, Wm. B., Co., Youngstown, O.
Furnaces. (Metallurgical.)
Rockwell Engineering Co., New York, N. Y.
Gages (Recording) and Counters.
Amer. Steam Gauge & Valve Mfg. Co., Boston, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Galvanized Sheets.
American Sheet Steel Co., New York, N. Y.
Bourne-Fuller Co., Cleveland, O.
Gas Compressors.
Brown-Cochran Co., Lorain, O.
Gas Meters.
Pittsburg Meter Co., E. Pittsburgh, Pa.
Gas Producers.
Pollock, Wm. B., Co., Youngstown, O.
Wood, R. D., & Co., Philadelphia, Pa.
Gas and Steam Fitters' Tools.
Reed Mfg. Co., Erie, Pa.
Saunders' Sons, A., & Sons, N. Y.
Simmons, John, Co., New York City.
Gaskets.
Boston Belting Co., Boston, Mass.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Voorhees Mfg. Co., Jersey City, N. J.
Gear Cutting Machines.
Whitton Machine Co., D. E., New London, Conn.
Gearing.
Brown, A. & F., Co., New York, N. Y.
Caldwell, H. W., & Son Co., Chicago, Ill.
Case Mfg. Co., Columbus, O.
Chester Steel Casting Co., Philadelphia, Pa.
Fairmount Machine Co., Philadelphia, Pa.
Jeffrey Mfg. Co., The, Columbus, O.
Greenwald Co., I. & E., Cincinnati, O.

Link-Belt Engineering Co., Philadelphia, Pa.
Nordyke & Marmon Co., Indianapolis, Ind.
Taylor Iron & Steel Co., High Bridge, N. J.
Tompkins, D. A., Co., Charlotte, N. C.
Woods, T. B., Sons, Chambersburg, Pa.
Geologists.
Caldwell, Chas., Staunton, Va.
Engineering Co. of America, New York, N. Y.
Frothing & Robertson, Richmond, Va.
Governor. (Water Wheel.)
Napoleo Governor Works, Akron, Ohio.
Graphite.
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon Crucible Co., Jersey City, N. J.
Internat'l Acheson Graphite Co., Niagara Falls, N. Y.
Obermayer, S. C., Cincinnati, O.
Wisconsin Graphite Co., Pittsburgh, Pa.
Grates and Grate Bars.
McClave-Brooks Co., Scranton, Pa.
Sanford-Day Iron Works, Knoxville, Tenn.
Grain Elevator Supplies.
Caldwell, H. W., & Son Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Nicetown, (Phila.) Pa.
Grease. (Lubricating.)
Cook's Sons, Adam, New York, N. Y.
Robinson, Wm. C., & Son, Baltimore, Md.
Grinding and Polishing Machinery.
Abrasive Material Co., The, Philadelphia, Pa.
Carborundum Co., The, Niagara Falls, N. Y.
Monarch Emery & Corundum Wheel Co., Camden, N. J.
Norton Emery Wheel Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.
Groovers.
Huther Bros., Rochester, N. Y.
Smith, H. B., Machine Co., Smithville, N. J.
Hammers. (Steam, Power, Pneumatic.)
Rand Drill Co., New York, N. Y.
Robinson, J. M., Mfg. Co., Cincinnati, O.
Savannah Locomotive Works, Savannah, Ga.
Handle Mch. [See Woodworking Mch.]
Fay, J. A., & Egan Co., Cincinnati, O.
Leland, F. J., Knoxville, Tenn.
Root, B. M., York, Pa.
Hardware Specialties.
Wrightsville Hardware Co., Wrightsville, Pa.
Hay Tools.
Myers & Bro., F. E., Ashland, O.
Heating Apparatus.
American Blower Co., Detroit, Mich.
Andrew & Johnson Co., Chicago, Ill.
Dixie Mfg. Co., Baltimore, Md.
Downman-Doxier Mfg. Co., Atlanta, Ga.
Monitor Steam Generator Mfg. Co., Baltimore, Md.
Peck-Hammond Co., The, Cincinnati, O.
Sturtevant Co., B. F., Boston, Mass.
Webster, Warren Co., Camden, N. J.
Holding Machinery.
American Ship Windlass Co., Providence, R. I.
Myers Machine Co., John F., Mattawan, N. Y.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Dake Engine Co., Grand Haven, Mich.
Flory, S. Mfg. Co., Bangor, Pa.
Hardie-Tynes Mfg. Co., Birmingham, Ala.
Hayward Co., New York, N. Y.
Jeffrey Mfg. Co., The, Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Males Co., The, Cincinnati, O.
Price, S. M., Machinery Co., Norfolk, Va.
Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.
Sprague Canning Machinery Co., Chicago, Ill.
Sullivan Machinery Co., Chicago, Ill.
Hoists.
Pawling & Harnischfeger, Milwaukee, Wis.
Hoists. (Pneumatic, Motor.)
Rand Drill Co., New York, N. Y.
Hoists. (PORTABLE.)
LeRoe, John E., Amsterdam, N. Y.
House Sheds.
Old Dominion Iron & Nail Works Co., Richmond, Va.
The Diamond Steel Co., Wilmington, Del.
Hose.
Boston Belting Co., Boston, Mass.
Eureka Fire Hose Co., New York, N. Y.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Voorhees Rubber Mfg. Co., Jersey City, N. J.
Hotels.
Southern Hotel, Baltimore, Md.
Hydrants.
Glanoran Pipe & Foundry Co., Lynchburg, Va.
Ludlow Valve Mfg. Co., Troy, N. Y.
Wood, R. D., & Co., Philadelphia, Pa.
Hydraulic Machinery.
American, Chicago, Ill.
Watson-Stillman Co., New York, N. Y.
Wood, R. D., & Co., Philadelphia, Pa.
Hydraulic Rams.
Niagara Hydraulic Engine Co., Chester, Pa.
Ice-Making Machinery and Supplies.
Arctic Mch. Co., Canton, Ohio.
Brown-Cochran Co., Lorain, O.
Columbus Iron Works Co., Columbus, Ga.
Creamery Package Mfg. Co., Chicago, Ill.
Frick Co., Waynesboro, Pa.
Healy Ice Machine Co., Chicago, Ill.
McWilliams, Jas. & Co., Louisville, Ky.
Pennsylvania Iron Works, Philadelphia, Pa.
Remington Machine Co., Wilmington, Del.
United Iron Works Co., Springfield, Mo.
Viller Mfg. Co., Milwaukee, Wis.
Vogt, Henry, Machine Co., Louisville, Ky.
Wolf Co., The, Fred. W., Chicago, Ill.
York Mfg. Co., York, Pa.
Incorporations. (Companies.)
Delaware Corporation Co., Wilmington, Del.
Delaware Trust Co., Wilmington, Del.
District of Columbia Charter Co., Washington, D. C.
Indicators. (Steam Engines.)
Amer. Steam Gauge & Valve Mfg. Co., Jam. Plain, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Scranton Steam Pump Co., Scranton, Pa.
Industrial Opportunities.
Lynchburg Traction & Light Co., Lynchburg, Va.
Latourche Progressive Union, Thibodaux, La.
Metropolitan Investment Co., Charleston, S. C.
Old Dominion Land Co., Newport News, Va.
Rayne, La. C. W. Lyman, Secretary Progressive Union.
Richards, M. V., & T. Agent, Washington, D. C.
Seaboard Air Line, Portsmouth, Va.
Southern Pacific, Houston, Tex.
St. Louis & San Francisco Railroad, St. Louis, Mo.
Sutherland, Howard, Land Agent, Elkins, W. Va.
Industrial Railways.
Koppel, Arthur, New York City.
Injectors.
Jenkins Bros., New York, N. Y.
Lunkenheimer Co., Cincinnati, O.
Ohio Injector Co., Wadsworth, O.
Penberthy Injector Co., Detroit, Mich.
Schofield, J. S., Sons, Co., Macon, Ga.
Simmons, John, Co., New York, N. Y.
Insulated Wire.
Electrical Material Co., Baltimore, Md.
Hazard Manufacturing Co., Wilkes Barre, Pa.
Insulators. (Glass.)
Electrical Material Co., Baltimore, Md.
Insulator Pins.
Allegheny Pin & Bracket Co., Corvinton, Va.
Electrical Material Co., Baltimore, Md.
Houston & Liggett, Lewisburg, Tenn.
Insulator Pin Machinery.
Chattanooga Machinery Co., Chattanooga, Tenn.
Insurance.
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
Maryland Casualty Co., Baltimore, Md.
Iron.
Alabama Consl. Coal & Iron Co., Birmingham, Ala.
American Sheet Steel Co., New York, N. Y.
Bourne-Fuller Co., Cleveland, O.
Globe Rolling Mill, Cincinnati, O.
Old Dominion Iron & Nail Works Co., Richmond, Va.

BAGS

Made from Cotton
and Burlap, for
every known
purpose.

Importers of all
widths and grades

BURLAP



TWINE

All sizes and
all grades
made from
best selected
Fibres.

ROPE

AMERICAN SHIP WINDLASS CO., - - Providence, R. I.

The "Providence" Windlasses, Capstans, Winches
and other Ship Machinery.

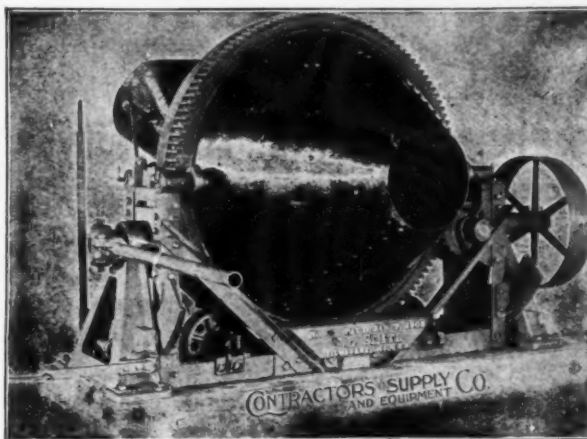
Automatic Steam Towing Machines, Wharf Drop Gearing, Etc.

We have just completed a New Up-To-Date Iron Foundry and are prepared to supply

FIRST-CLASS CASTINGS.

WHY MIX BY HAND, WHEN

THE SMITH MIXER



will save three-
fourths of the labor
cost of hand mix-
ing?

At the same time
the concrete made
by THE SMITH
MIXER will be far
better than the same
material hand mix-
ed. With a Smith
Mixer you get two
results:

1. Your Work is
the Best.
2. Its Cost is the
Least.

Why not investi-
gate?
We will help you
to do so.

REPRESENTED BY: Colonial Supply Co., Boston, Mass.; Jno. L. Kirk, Pittsburg, Pa.; Frank
H. Woodruff, New York, N. Y.; The Wm. Pattison Supply Co., Cleveland, Ohio.; Henshaw Bulkley
Co., San Francisco and Seattle.

Contractors' Supply & Equipment Co., Office and Salesrooms,
232 Fifth Ave., CHICAGO.

MARYLAND CEMENT CO.

MANUFACTURERS OF

Highest Grade Portland Cement.

OFFICE:

Builders' Exchange, Baltimore, Md.

WORKS:

Sparrows Point, Maryland.

RANSOME'S

Concrete Steel Construction

For FACTORIES, WAREHOUSES, ETC. Detailed information
promptly furnished.

RANSOME & SMITH CO.,

11 Broadway New York.

CONSULTING CONCRETE ENGINEERS.

BOOK OF DESIGNS

OF PLAIN AND INLAID

HARDWOOD FLOORS

is yours for the asking. Then, if you will
send measures of rooms, an estimate,
either on flooring or floors laid and fin-
ished, will be sent promptly.

The work is made in several thicknesses
adapted for use in new or old houses.

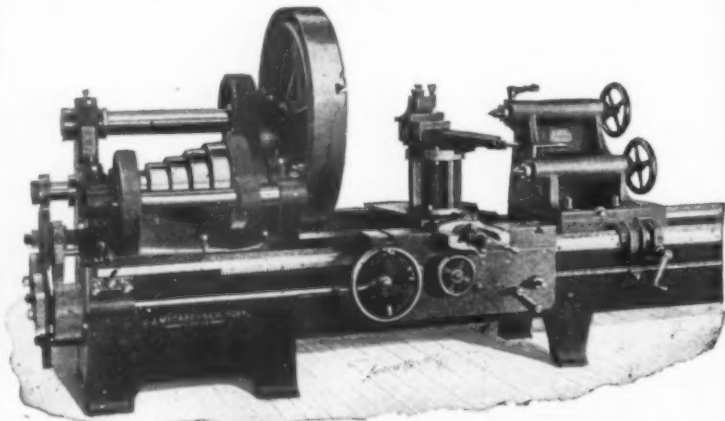
Many references can be given showing
the thoroughness of our work in our
particular field—Baltimore, Washington, Rich-
mond and the SOUTH.

J. M. ADAMS.

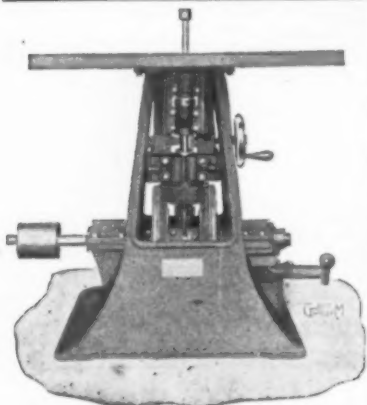
227 N. CHARLES STREET. BALTIMORE, MD.

I Make a Lathe

that occupies the space of an ordinary lathe, costs the price of an ordinary lathe, and yet does the work that otherwise requires two ordinary lathes. This lathe is my new 20"-48" Double Spindle Lathe. It will handle all your heavy jobs on the 48" spindle, and then without any bother whatever, you put your small work on the 20" spindle, and it handles it not in a "good enough" way, but just as good as though the lathe was built for that one size of work. Some improvements that I've made have increased the power 25%. I've put the back gears in front, and now use a larger intermediate gear in driving the large spindle. There isn't any improvement in modern lathe design that I haven't made use of in this one, and that's why I think we could get together on the lathe question with mutual profit. Let me send you some details.



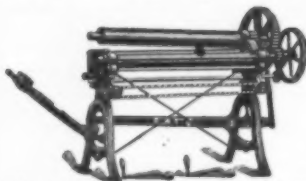
J. J. McCabe, 14 Dey Street, New York City.



Single Spindle Reversible Shaper.

Single and Double Spindle Shapers, Combination Shaper and Carver, Cutter Heads, Wing Cutters, etc. Designers of Special Machinery. Moshannon Manufacturing Co. PHILIPSBURG, PENNA.

Sheet Metal Working Machinery.



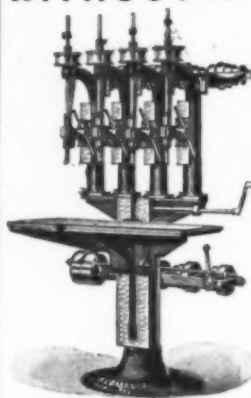
Pat'd. Automatic self-opening Forming Rolls, all sizes, for bending up to 1-inch plates. Also Crimping Rolls, seven styles; Squaring Shears and Punches; also combined Shears and Punches. BERTSCH & CO., CAMBRIDGE CITY, IND.

WITHOUT A RIVAL.

Proven by Experience to be the best. 25 Different Styles.

1 to 7 Spindles. 11 inch. 18 inch. Tables any size. Large Pulleys for Power. Perfect Balance.

Also AUTOMATIC Pin Machine Universal Grinder for Tool Room.



Send for Circulars No. 1-2-48. Polishing Straps to order.

THE ONLY WORCESTER, MASS. H. G. BARR.

CHAS. LEFFLER & CO.

49-61 Clymer Street, BROOKLYN, N. Y.

PRESSES, DIES AND TOOLS FOR TIN CANS AND BOXES.

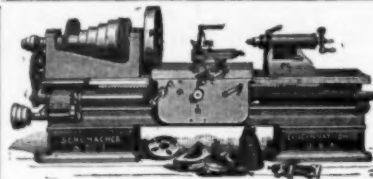
CASTERS.

Standard Ball-Bearing

Philadelphia, Piano-Forte, Neck-Grip, Bedstead.

Samples cheerfully sent.

UNIVERSAL CASTER & FDRY. CO. New York.



SCHUMACHER & BOYE,
Engine Lathes,
Cincinnati, Ohio.

MACHINERY

A few of our Stock of New Machines Ready for Immediate Shipment.

One 38 in. x 20 ft. New Haven Engine Lathe.
One each No. 2, No. 3 and No. 4 Brown & Sharpe Universal Milling Machines.
One 6 ft. Fostick & Holloway Full Universal Radial Drill.
One 36 in. x 16 ft. Schumacher & Boye Engine Lathe.
One 26 in. x 48 in. x 16 ft. McCabe Double Spindle New Style Engine Lathe, with Geared Face Plates.
One 24 in. x 16 ft. Draper Engine Lathe, with Triple Gears and T. A.
One 28 in. x 16 ft. Draper Engine Lathe, with Triple Gears and T. A.
Lathes from 10 in. up and Shapers of all strokes. A complete line of Drill Presses, Shapers, Planers, etc., always in stock.

Small Tools of Every Variety and Size, Complete Assortment.

WRITE US ABOUT YOUR NEEDS

BAIRD MACHINERY CO.

123-125 Water Street,

PITTSBURG, PA.



Very Often a Special Machine

is wanted for doing some extraordinary work which the ordinary machine cannot do. We are in business for the specific purpose of making a special machine of this kind, and can work from drawings and specifications. We are completely equipped to meet your requirements.

ECLIPSE MACHINE COMPANY,

Vulcan Bldg., Cleveland, Ohio.

The Bailey-Lebby Co.

MACHINERY and SUPPLIES.

AGENTS FOR

Lodge & Shipley Lathes
Cincinnati Milling Machines
Cincinnati Shapers
Cincinnati Planers
Cincinnati Upright Drills
Bickford Radial Drills

A line of good, reliable tools.

CHARLESTON, S. C.

Try The B-L Co. Anti-Friction Babbitt.

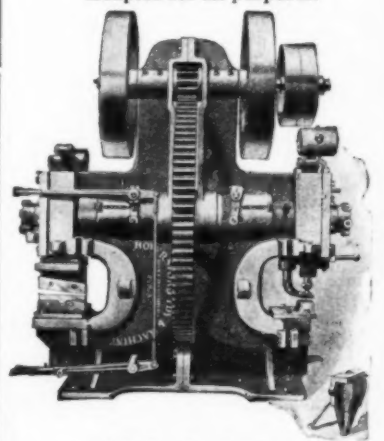
Sheet Metal Working MACHINERY.

See large ads. in last and next issues.

J. T. ROBINSON & CO., Cincinnati, O.

We build a full line of POWER PUNCHES and SHEARS

Combined and Single. Adapted for all purposes.



Ask for Catalogue.

Royersford Foundry & Machine Co.
ROYERSFORD, PA.

The Spindle of the New Bickford Radial

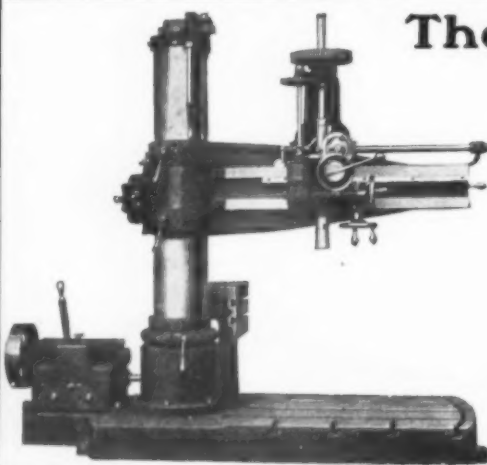
is provided with a depth gauge which enables operator to read all depths from zero, thereby avoiding the liability of error incident to reading a given distance from a fraction.

is equipped with an automatic trip which operates at different depths, thus making it useful for all repetition work, whether requiring one or a dozen operations to complete.

These are but two of the "56 Points of Vantage" embodied in our drill. Send for booklet "56 Points of Vantage."

The Bickford Drill & Tool Company,
CINCINNATI, OHIO, U. S. A.

AGENTS. J. W. Wright & Co., St. Louis, Mo. P. H. McArdle, New Orleans, La. Gray & Dudley Hardware Co., Birmingham, Ala. The Fairbanks Co., Baltimore, Md. Georgia Supply Co., Savannah, Ga. Prentiss Tool & Supply Co., New York, Buffalo and Boston. W. E. Shipley, Philadelphia, Pa. Brown & Zortman Machinery Co., Pittsburg, Pa. Marshall & Huschard Machinery Co., Chicago and Cleveland. Henshaw, Bulkley & Co., San Francisco and Seattle, Wash. Robinson & Cary Co., St. Paul, Minn. Scott Supply & Tool Co., Denver, Col. The Henry Walke Co., Norfolk, Va.



of all the Buckets used in the construction of the N. Y. Rapid Transit Subway are manufactured by the

G. L. Stuebner
IRON WORKS,

167-177 E. 34. St., Long Island City, N. Y.

Catalogue No. 444 gives full information of Buckets, Narrow Gauge Railways, Cars, etc., for every purpose.

AUTOMATIC SCALES

Send for Catalogue
RICHARDSON SCALE CO.
18-22 Park Row, N. Y.

Classified Index of Articles Advertised

For ALPHABETICAL INDEX See Page 32.

Iron Brokers.

Armstrong, B. & Bro., Atlanta, Ga.
Cox, Jr., Justice, & Co., Inc., Philadelphia, Pa.
Malos Co., Cincinnati, O.Jaacks, (Lifting, Track and Oil Well).
Watson-Hillman Co., New York, N. Y.
Kestles, (Steam Jacket).Badger, R. B. & Sons Co., Boston, Mass.
Petroleum Iron Works Co., Washington, Pa.
Pollock, Wm. B. Co., Youngstown, O.Isaiah Grinders. (New Automatic).
Fay, J. A. & Sons Co., Cincinnati, O.
Smith H. R. Machine Co., Smithville, N. J.

Knitting Machinery.

Campbell & Glute Machine Co., Cohoes, N. Y.
May Knit. Mach. & Needle Co., Franklin Falls, N. H.McMichael & Wildman Mfg. Co., Norristown, Pa.
Nye & Trelick Co., Philadelphia, Pa.
Ruth Auto. Knitting Machine Co., York, Pa.Scott & Williams, Philadelphia, Pa.
Lamps and Lanterns. (Kerosene.)
Ham, U. T., Mfg. Co., Rochester, N. Y.Lamps. (Arc and Incandescent).
Alexander, Jr., Co., S. E. Charlotte, N. C.
Electrical Material Co., Baltimore, Md.Electric Supply Co., Savannah, Ga.
General Electric Co., Schenectady, N. Y.
Kentucky Electric Co., Owensboro, Ky.Piedmont Electric Co., Asheville, N. C.
Shelby Electric Co., Shelby, O.
Standard Electric Co., Norfolk, Va.Sterling Electrical Mfg. Co., Warren, O.
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.
Lamp & Heater. (Incandescent).Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.
Pacific Electric Co., La Crosse, Wis.
Lamp Replacer. (Incandescent).Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.
Lamp Shades & Guards. (Incandescent).Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.
Lands.
Abbott, F. C. & Co., Charlotte, N. C.Brookston, Feudig & Co., Brunswick, Ga.
Martin & Bro., Augusta, Ga.
Putnam, Joseph E., Chicago, Ill.Richards, M. V., Land & Industrial Agt., Wash., D. C.
Seaboard Air Line, Portsmouth, Va.
Sutherland, Howard, Land Agent, Elkins, W. Va.Southern Pacific, Houston, Tex.
St. Louis & San Francisco Railroad, St. Louis, Mo.
Watson, E. K., Atlanta, Ga.Wingard, O. H., St. Louis, Mo.
Lathes. (Engine).
Baird Mch. Co., Pittsburg, Pa.Barnes, W. F. & J. Co., Rockford, Ill.
Gibbes, W. H. & Co., Columbia, S. C.
Robinson, W. C. & Son, Co., Baltimore, Md.McCabe, J. J., New York, N. Y.
Price, S. M., Machinery Co., Norfolk, Va.
Savannah Loco. Works & Supply Co., Savannah, Ga.Schumacher & Boys, Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.
Laundry Machinery.Adams Laundry Machinery Co., Troy, N. Y.
Dawson, A. L. & Co., Chicago, Ill.
Sinclair Co., S. H., Chicago, Ill.Wilson Laundry Machinery Co., Columbia, Pa.
Lead and Tin. (Fig.).
Hertz, Theo., Metal Co., St. Louis, Mo.Ryan & Co., J., Chicago, Ill.
Letters. (PATTERN).
Brim, A. W., Seneca Falls, N. Y.Lime.
Carolina Portland Cement Co., Charleston, S. C.
Kreighuber, V. H., Atlanta, Ga.Maryland Lime & Cement Co., Balto., Md.
Southeastern Lime & Cement Co., Charleston, S. C.
Warner, Charles Co., Wilmington, Del.Locomotive Builders.
American Locomotive Co., New York, N. Y.
Baldwin Locomotive Works, Philadelphia, Pa.Byers, Jno. F., Mch. Co., Havana, O.
Climax Mfg. Co., Cory, Pa.
Low, Edgar S., Co., Pittsburg, Pa.Males Co., Cincinnati, O.
Porter, H. K., Co., Pittsburg, Pa.
Loom Harness.American Supply Co., Providence, R. I.
Looms and Weaving Machinery.
American Supply Co., Providence, R. I.Draper Co., Lowell, Mass.
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.Mason Machine Works, Taunton, Mass.
Tompkins, D. A., Co., Charlotte, N. C.
Lubricating Compounds.Galens Signal Oil Co., Galena, Pa.
Robinson, Wm. C. & Sons Co., Baltimore, Md.
Cook's, Adam, Sons, New York, N. Y.Lubricants and Oil Cups.
Cook's Sons, Adam, New York, N. Y.
Crosby Steam Gage & Valve Co., Boston, Mass.Detroit Lubricator Co., Detroit, Mich.
Lunkenshimer Co., Cincinnati, O.
Penberthy Injector Co., Detroit, Mich.Lumber.
Kirby Lumber Co., Houston, Tex.
Montgomery Lumber Mfg. Co., Montgomery, Ala.Red Cypress Lumber Co., Macon, Ga.
Stetson Lumber Co., Macon, Ga.
Wilkins, Van S., Lumber Co., Mobile, Ala.Machinery. (Special).
American Machine Co., Wilmington, Del.
Eclipse Mch. Co., Chicago, Ill.Lefter, Charles, & Co., Brooklyn, N. Y.
Mohannan Mfg. Co., Philadelphia, Pa.
Pennsylvania Iron Works, Philadelphia, Pa.Roversford Foundry & Machine Co., Roversford, Pa.
Machinery Bargains. (New & SEC. HAND).
Affleck, Geo. E., New York, N. Y.American, Chicago, Ill.
American Elec. Supply & Mfg. Co., New York, N. Y.
Anthracite Mch. & Supply Co., Allentown, Pa.Armstrong, B. & Bro., Atlanta, Ga.
Baker, H. C. & Co., Philadelphia, Pa.
Bennett, G. L., New York, N. Y.Booth & Flinn, Ltd., Pittsburg, Pa.
Bown & Street Equipment Co., Norfolk, Va.
Braden, Jas. S., New York, N. Y.Brown & Zortman Machinery Co., Pittsburg, Pa.
Caine & Platt, Philadelphia, Pa.
Casey, D. L., Mch. Co., Springfield, O.Chicago House Wrecking Co., Chicago, Ill.
Cincinnati Equipment Co., Cincinnati, O.
Cleveland Belting & Machinery Co., Cleveland, O.Clyde Mch. Works, Chicago, Ill.
Columbia Supply Co., Columbia, S. C.
Columbus Iron & Steel Co., Columbus, O.Contractors' Equipment Co., Philadelphia, Pa.
Contractors' Supply Co., Pittsburg, Pa.
Contractors' Supply & Equipment Co., Chicago, Ill.Cox, Justice, Jr., & Co., Ltd., Philadelphia, Pa.
Driscoll, John T., & Co., Chicago, Ill.
Fidelity Machine & Metal Co., Philadelphia, Pa.Garvie Machine Co., New York, N. Y.
Hartfelder-Garbutt Co., Savannah, Ga.
Heiler, N. C. & Co., Philadelphia, Pa.Hunters, H. A., Sons, Philadelphia, Pa.
Huntington Machinery & Supply Co., Wilkesbarre, Pa.
Kaiser, A. V. & Co., Philadelphia, Pa.Kennedy, L. E. & Co., New York, N. Y.
Kohn, J. W., & Co., Cleveland, O.
Lehman, Charles T., Birmingham, Ala.Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio.
Lucas, J. C. M., Baltimore, Md.
Mauger's Machinery Exchange, Baltimore, Md.Patapasco Machine & Supply Co., Baltimore, Md.
Poultner & Co., Philadelphia, Pa.
Price Machinery Co., Chicago, Ill.Rostler, MacGovern & Co., New York, N. Y.
Samuel, Frank, Philadelphia, Pa.
Saxton, J. C., New York, N. Y.

Seibert, L. F., Boston, Philadelphia, Pa.

Shaw, Willis, Chicago, Ill.

Stewart, John A., Electric Co., Cincinnati, O.
Straub Machinery Co., Cincinnati, N. Y.Thompson, Son & Co., New York, N. Y.
Toomey, Frank, Philadelphia, Pa.
Trampe, Charles F., St. Louis, Mo.Waters, John A. & Co., Richmond, Va.
Wicks Bros., Pittsburg, Pa., Saginaw, Mich., N. Y.
Wolf, L. & Bro., Cincinnati, O.

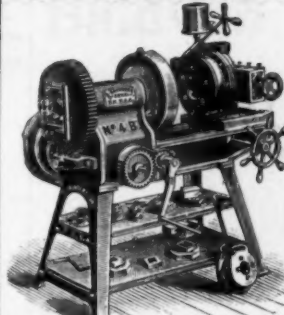
Machine Tools.

Baird Mch. Co., Pittsburg, Pa.
Barnes, W. F. & J. Co., Rockford, Ill.Bickford Drill & Tool Co., Cincinnati, O.
Cincinnati Milling Machine Co., Cincinnati, O.
Greaves, Klusman & Co., Cincinnati, O.Landis Tool Co., Waynesboro, Pa.
McCabe, J. J., New York, N. Y.
Pratt & Whitney, Hartford, Conn.Price, S. M., Machinery Co., Norfolk, Va.
Savannah Loco. Works & Supply Co., Savannah, Ga.
Schumacher & Boys, Cincinnati, O.Walke, Henry, Co., Norfolk, Va.
Mail Chutes.
Outer Mfg. Co., Rochester, N. Y.Mattresses.
Perfection Mattress Co., Birmingham, Ala.
Mechanical Draft.Allington & Curtis, Saginaw, Mich.
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.Cincinnati Exhaust & Blow Pipe Co., Cincinnati, O.
Dixie Mfg. Co., Baltimore, Md.
Hartford Blower Corp., Hartford, Conn.Sturtevant, B. F. Co., Boston, Mass.
Memorial Windows.
Capital City Art Glass Works, Atlanta, Ga.Mercantile Agencies.
International Mercantile Agency, New York, N. Y.
Herrick-Spiller & Co., North Tonawanda, N. Y.McIntire, P. C. & Co., Charlotte, N. C.
Metal-Working Machinery.
Baird Mch. Co., Pittsburg, Pa.Barnes, W. F. & J. Co., Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Bickford Drill & Tool Co., Cincinnati, O.Cincinnati Milling Machine Co., Cincinnati, O.
Gibbes, W. H. & Co., Columbia, S. C.
Greaves, Klusman & Co., Cincinnati, O.Landis Tool Co., Waynesboro, Pa.
McCabe, J. J., New York, N. Y.
Niagara Machine & Tool Works, Buffalo, N. Y.Pratt & Whitney Co., Hartford, Conn.
Price, S. M., Machinery Co., Norfolk, Va.
Robinson, J. M., Mfg. Co., Cincinnati, O.Roversford Foundry & Machine Co., Roversford, Pa.
Savannah Loco. Works & Supply Co., Savannah, Ga.
Schumacher & Boys, Cincinnati, O.Walke, Henry, Co., Norfolk, Va.
Whitton Machine Co., D. E., New London, Conn.
Meters. (Gas).Pittsburg Meter Co., E. Pittsburg, Pa.
Meters. (Water).
Pittsburg Meter Co., E. Pittsburg, Pa.Worthington, Henry B., New York, N. Y.
Mill Engineers and Architects.
Collier & Brown, Atlanta, Ga.Dyer, D. H., & Son, Fall River, Mass.
Makense, C. H. & Co., Providence, R. I.
Fraser, C. A. M. & Co., Providence, R. I.Robbins, O. A., Charlotte, N. C.
Shaw, Fred, G., Augusta, Ga.
Tompkins, D. A., Co., Charlotte, N. C.Whaley, W. B. Smith & Co., Columbia, S. C.
Wheeler & Hunge, Charlotte, N. C.
Milling Machines.Baird Mch. Co., Pittsburg, Pa.
Cincinnati Milling Machine Co., Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.Mill Supplies.
Alexander, B. Jr., Co., Charlotte, N. C.
Bartley-Lobby Co., Charleston, S. C.Cameron & Barkley Co., Charleston, S. C.
Case Mfg. Co., Columbus, O.
Clark & Hines, Baltimore, Md.Columbia Supply Co., Columbia, S. C.
Cotton States Belting & Supply Co., Atlanta, Ga.
Gainesville Iron Works, Gainesville, Ga.Greenwald Co., I. & E., Cincinnati, O.
Hartfelder-Garbutt Co., Savannah, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.Mecklenburg Iron Works, Charlotte, N. C.
Miller Oil & Supply Co., Indianapolis, Ind.
Munson Bros. Co., Utica, N. Y.Simmons, John, Co., New York City.
Smith-Courtney Co., Richmond, Va.
Wolf Co., Chambersburg, Pa.Mineral Wool.
U. S. Mineral Wool Co., New York, N. Y.
Mining Machinery. (Gold, Copper, Slate, etc.).Bartlett, C. O., & Son, Co., Silverland, O.
Crescon Co., Geo. V., New York, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.Ingersoll-Sergeant Drill Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
McLennan-Stone Machine Co., Hollidaysburg, Pa.Mecklenburg Iron Works, Charlotte, N. C.
Northern Electric Mfg. Co., Madison, Wis.
Pollock, Wm. B. Co., Youngstown, O.Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.
Sullivan Machinery Co., Chicago, Ill.
Mixing Machinery.Bartlett, C. O., & Son, Co., Cleveland, O.
Contractors' Supply & Equipment Co., Chicago, Ill.
Drake Standard Mch. Wks., Chicago, Ill.Dunning, W. D., Syracuse, N. Y.
Ransome Concrete Machinery Co., New York, N. Y.
Walker & Elliott, Wilmington, Del.Mortar Colors.
Chattanooga Paint Co., Chattanooga, Tenn.
French, Samuel H., & Co., Philadelphia, Pa.Nails. (Cut).
Old Dominion Iron & Nail Works Co., Richmond, Va.
Nails. (Wire).Ludlow-Hayler Wire Co., The, St. Louis, Mo.
Oats Cleaner. (AUTOMATIC).
Kemper Oats Cleaner Co., Chicago, Ill.Office Fixtures.
Cushing Co., Baltimore, Md.
Dearborn Desk Co., Birmingham, Ala.Himmel, M. L., & Son, Baltimore, Md.
Oils.
Cook's, Adam, Sons, New York, N. Y.Bligh, W. M., Co., Charleston, S. C.
Galena-Signal Oil Co., Franklin, Pa.
Ironides Co., Columbus, O.Miller Oil & Supply Co., Indianapolis, Ind.
Robinson, Wm. C. & Son, Co., Baltimore, Md.
Oil-Burning Appliances.Petroleum Iron Works Co., Washington, Pa.
Rockwell Engineering Co., New York, N. Y.
Oilers.Gem Mfg. Co., Pittsburg, Pa.
Ironides Co., Columbus, O.
Lunkenshimer Co., Cincinnati, O.Organizers and Developers.
MacAlister, John Blair, Philadelphia, Pa.
Mechanics' Electric Co., Boston, Mass.Metropolitan Investment Co., Charleston, S. C.
Railways & Light Co., Baltimore, Md.
Ridion, H. C., Washington, D. C.Butler, C. H., Easton, Pa.
Facking.
Baltimore Engine Co., Baltimore, Md.Boston Belting Co., Boston, Mass.
Jenkins Bros., New York, N. Y.
N. J. Car Spring & Rubber Co., Jersey City, N. J.Peelies Rubber Mfg. Co., New York, N. Y.
Pennsylvania Rubber Co., New York, N. Y.
Vorhees Rubber Mfg. Co., Jersey City, N. J.

D. SAUNDERS' SONS,

MANUFACTURERS OF

PIPE CUTTING AND THREADING MACHINES



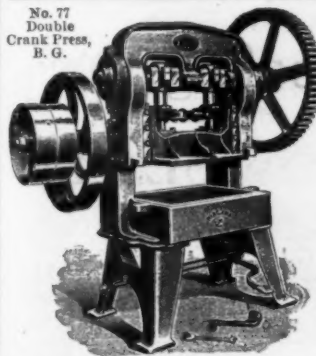
No. 4 B Machine. 1/2 to 4 inch. Hand or Power.

All sizes 1/2 inch to 18 inch for Pipe Mill, Gas and Steam Fitters' use. Tapping Machines for Steam Fittings; also

Steam and Gasfitters' Hand Tools

SEND FOR CATALOGUE.

25 Atherton Street, Yonkers, N. Y.



No. 77 Double Crank Press, B. G.

Tools For Sheet Metals

Presses, Punches, Forming Rolls, Squaring, and Rotary Shears, Tinsmiths' Tools, etc., etc.

NIAGARA MACHINE & TOOL WORKS, BUFFALO, N. Y.

L. B. Flanders' Machine Works.

REPAIRS.... Engines and Pumps.

We send experienced mechanics with Portable Tools anywhere to repair Engines, Pumps and Ice Machines. Cylinders from 3 inches to 110 inches rebored in present position. Crank-shaft Journals of any size turned off without removal. All Work Guaranteed and Done Promptly.

WE BUILD....

Dash Pots, Portable Cylinder Boring Bars, Portable Milling Machines, Boring Bars for Lathe Work,

Portable Crank Pin Turning Machine, Radius Planer Attachment, Portable Facing Arms, Rotary Planing Machines.

H. B. UNDERWOOD & CO.

1025 Hamilton Street,

PHILADELPHIA, PA.

ESTABLISHED 1870.

A Modern Machine for Up-to-date Machine Shops. Gear Cutting Machines.

The general design of these machines affords the greatest possible convenience of adjustment and operation upon all varieties of work. Worms, Face and Bevel Wheels, etc. The Cutter Head, the Cutter Spindle and the Facing Mechanism combine special features. In use throughout the North and South. Sent on trial to responsible parties. Send for 1902 pamphlet.

The D. E. Whiton Machine Co.
NEW LONDON CONN.



Oilers.

Made of steel with brazed joints and seams. For All Purposes. No Leaks.

GUARANTEED. For Illustrated Booklet write

The P. Wall Mfg. Supply Company, Allegheny, Pa.

Also Makers of Everlasting Steel

Torches.



BUY YOUR

Genuine

Bangor

Roofing

SLATE

Direct from the

MANUFACTURER

GENUINE BANGOR SLATE
COMPANY,

EASTON,

PENNA.

ROSS-MEEHAN FOUNDRY CO.

Chattanooga,
Tennessee.

GREY & MALLEABLE
IRON FOUNDERS.
M.G.B. COUPLERS.

CASTINGS

REG. TRADE MARKS



THE PHOSPHOR BRONZE SMELTING CO. LIMITED,
2200 WASHINGTON AVE. PHILADELPHIA.

"ELEPHANT BRAND PHOSPHOR-BRONZE"
INGOTS, CASTINGS, WIRE, RODS, SHEETS, ETC.

— DELTA METAL —

CASTINGS, STAMPINGS AND FORGINGS
ORIGINAL AND SOLE MAKERS IN THE U.S.

STEEL CASTINGS

OPEN HEARTH Steel Castings of every description, for
Electrical Machinery; Dredging, Rolling and Sugar Mill Machinery; Locomotive, Railroad and
Bridge Work, etc.

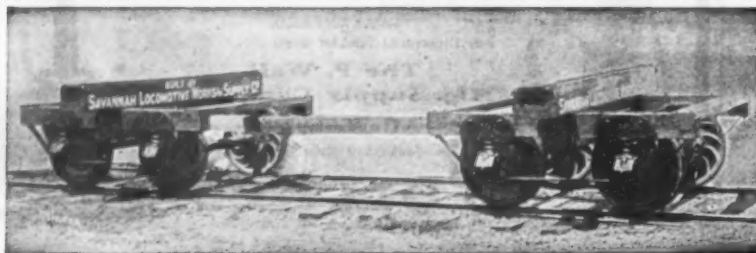
McHAPPIE Steel Castings of all shapes and sizes, from 1
lb. up. Superior for Crankshafts, Gearing and
other purposes where great wearing results are required.

CHESTER STEEL CASTINGS CO.
Works, CHESTER, PA. Office, 407 Sansom St., PHILA., PA.
Correspondence Solicited.



SOLE MANUFACTURERS OF FRED G. WEIR'S
IMPROVED RIGID & SPRING FROGS, CROSSINGS
SINGLE & THREE THROW SPLIT SWITCHES.
FIXED & AUTOMATIC SWITCH STANDS. STEEL
DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC.

CABLE & ELECTRIC
TRACK WORK
FROGS, SWITCHES
CROSSINGS, CURVES
RAIL CHAIRS
ETC.



MORSE TWIST DRILL & MACHINE CO.

NEW BEDFORD, MASS., U. S. A.



BEACH CHUCK No. O.

No. O, holding from 0 to 1/2 inch diameter (for jewelers).

We make three good Chucks —
Beach, Stetson and Center Drill
Chucks. This cut represents full
size of our No. 121 Beach Chuck
used by jewelers.

American Locomotive Co.

General Office, 25 Broad St., NEW YORK CITY.

BUILDERS OF

Locomotives

For all classes
of services.



Mining Locomotives, Logging Locomotives,
Compressed Air Locomotives, Contractors' Locomotives,

Schenectady Works, Schenectady, N. Y.
Brooks Works, Dunkirk, N. Y.
Pittsburg Works, Allegheny, Pa.
Richmond Works, Richmond, Va.

Cooke Works, Paterson, N. J.
Rhode Island Works, Providence, R. I.
Dickson Works, Scranton, Pa.
Manchester Works, Manchester, N. H.

THE JOHN F. BYERS MACHINE CO.

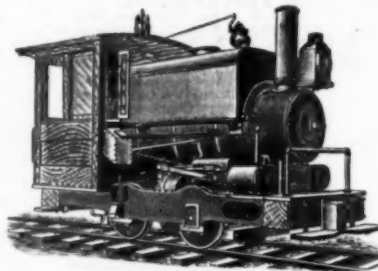
RAVENNA, OHIO.

Manufacturers of

Hoisting Engines, LOCOMOTIVES,

Derrick Cars, Derrick Irons,
Etc.

WRITE FOR CATALOGUE "G."



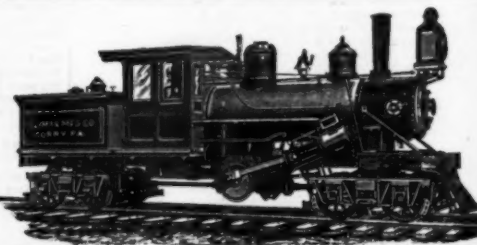
CLIMAX

Geared Locomotives,

For Wood or
Iron Rail.

Send for Illustrated Catalog.

CLIMAX MFG. CO.
Corry, Pa.



BRASS FOUNDERS J. J. RYAN & CO.

68-74 West Monroe St., Chicago.

Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS on Short Notice.

IRON FOR QUICK SHIPMENT STEEL

BARs, PLATES, SHEETS, TUBES, BEAMS, CHANNELS, ANGLES
STEEL TIRES, ETC.

We Carry a Large Stock of the Above in Our Warehouses.

Write for our Monthly Stock List.

THE GLOBE ROLLING MILL CO., Cincinnati, O.

LOGGING TRUCKS.

The lumber trade uses our specialty—LOGGING TRUCKS, wheels 24" to 33".
This truck does away with arch bars and wheels are easily replaced.

We rent or sell locomotives, cylinders 13x24 to 18x24; weight 20 to 30 tons;
drivers from 54 to 60; standard gauge; all types and reasonable prices.
This machinery is good.

Savannah Locomotive Works & Supply Co.,
Savannah, Ga.

Classified Index of Articles Advertised

For ALPHABETICAL
INDEX See Page 32.**Paint.** (Cold Water.)Bird, J. A. & Co., Boston, Mass.
Columbia Painting Co., New York, N. Y.
Fox, M. Ewing & Co., New York, N. Y.**Paint.** (Roofing, etc.)Armstrong Mfg. Co., The, Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Bird, W. M., & Co., Charleston, S. C.
Buchanan-Vesler Co., Philadelphia, Pa.
Chattanooga Paint Co., Chattanooga, Tenn.
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Eastern Granite Roofing Co., New York, N. Y.
French, Samuel H., & Co., Philadelphia, Pa.
Harrison, John, Co., New York, N. Y.
Standard Paint Co., New York, N. Y.
Wisconsin Graphite Co., Pittsburgh, Pa.**Paper.** (Roofing, Building, Sheathing, etc.)Armstrong Mfg. Co., The, Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Buchanan-Vesler Co., Philadelphia, Pa.
Eastern Granite Roofing Co., New York, N. Y.
Garrett, C. S., & Son, Co., Philadelphia, Pa.
National Roofing & Supply Co., Louisville, Ky.
Standard Paint Co., The, New York, N. Y.**Paper.** (Sand, Emery.)

Baker, Adamson & Co., Philadelphia, Pa.

Paquet.

Adams, J. M., Baltimore, Md.

Paste. (Graphite Pipe Joint.)

Wisconsin Graphite Co., Pittsburgh, Pa.

Pattern Makers' Machinery.

Fay, J. A., & Egan Co., Cincinnati, O.

Patterns. (Metal.)Richmond Pattern Works, Richmond, Va.
Ryan, J. J., & Co., Chicago, Ill.**Patterns.** (Wooden.)

Richmond Pattern Works, Richmond, Va.

Paving Material.Barrett Mfg. Co., Philadelphia, Pa.
National Roofing & Supply Co., Louisville, Ky.**Perforated Metal.**Aitchison Perforated Metal Co., Robert, Chicago, Ill.
Beckley, A. J., Co., Garwood, N. J.**Petroleum.**

Gulf Refining Co., Pittsburg, Pa.

Phosphate Machinery.Baker, Adamson & Co., Philadelphia, Pa.
Bradley Pulverizer Co., Boston, Mass.**Phosphor Bronze.** (Wire, Rods, Sheets.)

Ryan, J. J., & Co., Chicago, Ill.

Phosphor Bronze Smelting Co., Ltd., Philadelphia, Pa.

Van Dusen, E. W., Co., Cincinnati, O.

Planes and Organs.

Stieff, Charles M., Baltimore, Md.

Pig Iron.Alabama Coal & Iron Co., Birmingham, Ala.
Bourne-Fuller Co., Cleveland, O.**Piling.**International Creosoting & Const. Co., Galveston, Tex.
West Pascagoula Creosote Wks., Pascagoula, Miss.**Pillow Blocks.**Caldwell, W. E., Co., Louisville, Ky.
Crescent Co., Geo. V., New York, N. Y.**Pipe.** (Cast Iron.)Ditmick Pipe Co., Birmingham, Ala.
General Fire Extinguisher Co., Providence, R. I.**Pipe.** (Steel.)National Pipe Bending Co., New Haven, Conn.
Wolf Co., Fred. W., Chicago, Ill.**Pipe.** (Spiral Riveted.)

American Spiral Pipe Works, Chicago, Ill.

Pipe. (Wrought Iron.)Bourne-Fuller Co., Cleveland, O.
Columbia Supply Co., Columbia, S. C.**Pipe.** (Copper and Copper.)Georgia Vitreous Brick & Clay Co., Augusta, Ga.
Kriegshaber, V. H., Atlanta, Ga.**Pipe.** (Copper and Copper.)Maryland Lime & Cement Co., Balto., Md.
Pomona Terra Cotta Co., Pomona, N. J.**Pipe.** (Copper and Copper.)Stevens' Sons Co., H. Mason, Ga.
Warner Co., Chas., Wilmington, Del.**Pipe.** (Sheet Steel.)

Dixie Mfg. Co., Baltimore, Md.

Pipe. (Spiral Riveted.)

American Spiral Pipe Works, Chicago, Ill.

Pipe. (Wrought Iron.)Bourne-Fuller Co., Cleveland, O.
Columbia Supply Co., Columbia, S. C.**Pipe.** (Copper and Copper.)Georgia Vitreous Brick & Clay Co., Augusta, Ga.
Kriegshaber, V. H., Atlanta, Ga.**Pipe.** (Copper and Copper.)Maryland Lime & Cement Co., Balto., Md.
Pomona Terra Cotta Co., Pomona, N. J.**Pipe.** (Copper and Copper.)Stevens' Sons Co., H. Mason, Ga.
Warner Co., Chas., Wilmington, Del.**Pipe.** (Sheet Steel.)

Dixie Mfg. Co., Baltimore, Md.

Pipe. (Spiral Riveted.)

American Spiral Pipe Works, Chicago, Ill.

Pipe. (Wrought Iron.)Bourne-Fuller Co., Cleveland, O.
Columbia Supply Co., Columbia, S. C.**Pipe.** (Copper and Copper.)Georgia Vitreous Brick & Clay Co., Augusta, Ga.
Kriegshaber, V. H., Atlanta, Ga.**Pipe.** (Copper and Copper.)Maryland Lime & Cement Co., Balto., Md.
Pomona Terra Cotta Co., Pomona, N. J.**Pipe.** (Copper and Copper.)Stevens' Sons Co., H. Mason, Ga.
Warner Co., Chas., Wilmington, Del.**Pipe.** (Sheet Steel.)

Dixie Mfg. Co., Baltimore, Md.

Pipe. (Spiral Riveted.)

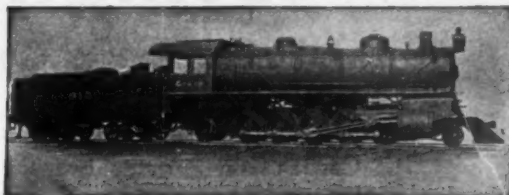
American Spiral Pipe Works, Chicago, Ill.

Presses. (Rolling, Cottonseed Oil, etc., Hydraulic and Power.)Boomer & Bochart Press Co., Syracuse, N. Y.
Bushnell Press Co., G. H., Thompsonville, Conn.
Cardwell Machine Co., Richmond, Va.
Gibbs, W. H., & Co., Columbia, S. C.
Tompkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.
Watson-Stillman Co., New York, N. Y.**Pulleys.** (Friction Clutch.)Blakeslee Mfg. Co., Birmingham, Ala.
Brown, A. & F. Co., New York, N. Y.
Crescent Co., Geo. V., New York, N. Y.
Smith, S. Morgan, Co., York, Pa.
Williams, M. F., Mfg. Co., St. Louis, Mo.
Wood's T. B., Sons, Chambersburg, Pa.**Pulleys.** (Pneumatic.)

Williams, M. F., Mfg. Co., St. Louis, Mo.

Pulleys. (Wood Split.)Caldwell, H. W., & Son Co., Chicago, Ill.
Caldwell, W. E., Co., Louisville, Ky.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.**Pulleys.** (Steel Split.)American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.

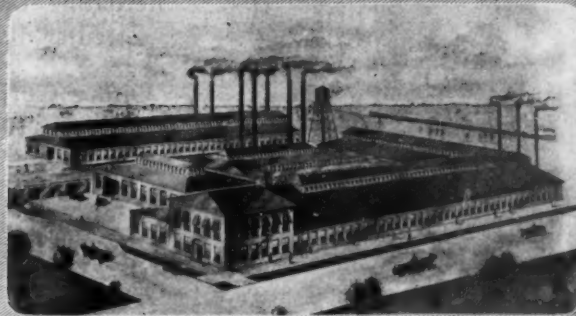
Baldwin Locomotive Works



Broad and Narrow Gauge **LOCOMOTIVES** Single Expansion and Compound
Mine, Furnace and Industrial Locomotives. Electric Locomotives with Westinghouse Motors and Electric Trucks.

Burnham, Williams & Co., Philadelphia, Pa., U. S. A.

Code Word—"Baldwin" Philadelphia

COLD ROLLED STRIP STEEL

For Blanking, Stamping and Drawing
In Coils or Cut to Lengths
All Gauges, Widths and Tempers
Prompt Deliveries

COLUMBIA STEEL WORKS—Elyria, O

Latrobe Steel and Coupler Company,
CHICAGO AND MUNTON ALL-STEEL AUTOMATIC COUPLERS.

Works: Melrose Park, Ill. Main Office:
Branch Office: 1720 Old Colony Bldg., Chicago. 1200 Girard Bldg., PHILADELPHIA

LIGHT LOCOMOTIVES,

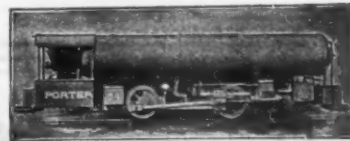
All Gauges, Sizes and Designs.

Steam and Compressed Air.

6th Edition Catalogue mailed free to intending purchasers (or to accommodate others on receipt of 50c. in stamps).

H. K. PORTER CO.

6th Ave., PITTSBURG, PA.
Locomotives, narrow and wide gauge, on hand.



SEND US YOUR ORDERS FOR

Crucible Steel Castings

We begin casting the day following receipt of patterns.

NORTMANN-DUFFKE FOUNDRY CO.

26th Ave., Layton Park,

MILWAUKEE, WIS.

THE AMERICAN FROG & SWITCH CO., Hamilton, O.
FROGS, SWITCHES, SWITCH STANDS, RAIL BRACES.

Westinghouse

Motor-Driven Air Compressors

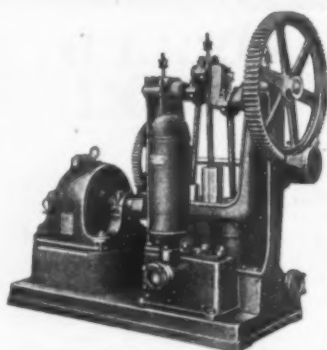
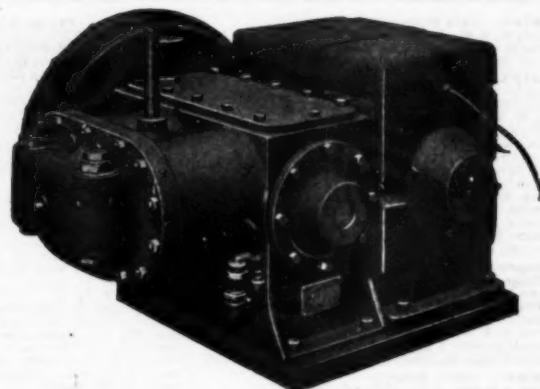
For supplying compressed air for Traction Car Brakes, Portable Blowing Outfits, or for any purpose where compact, dust and water-proof construction is an advantage.

For information address

Westinghouse Traction Brake Co.

26 Cortlandt St., New York

Apparatus Manufactured by The Westinghouse Air Brake Co.



Westinghouse Multipolar Motor
Driving a Gould Triplex Pump

Alternating Current
Circular 1050

Direct Current
Circular 1042

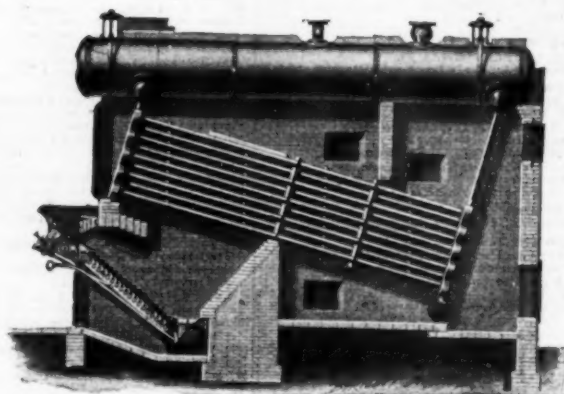
Westinghouse Motors

Increase the efficiency, yet
decrease the operating cost
of every class of apparatus.

Westinghouse Electric & Mfg. Co.

Sales Offices in Every Large City

Pittsburg, Pa.



The Roney Stoker as applied to a Babcock & Wilcox Boiler

The Roney Stoker

Possesses, as does no other type, the feature
of accessibility; the bed of the fire is visible
from the under side of the grate, permitting its
inspection at all times.

For particulars address nearest sales office of

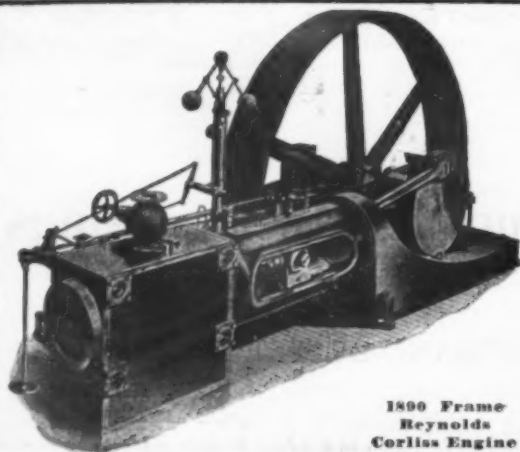
The Westinghouse Machine Co.
Works, East Pittsburg, Pa.

Sales Offices:

New York, 10 Bridge St. Chicago, 171 La Salle St.
Boston, 131 State St. Detroit, Union Trust Bldg.
Pittsburg, Westinghouse Bldg. Philadelphia, Stephen Girard Bldg.

Designers and Builders of

Steam Engines, Gas Engines, Steam Turbines, Roney Mechanical Stokers



1896 Frame
Reynolds
Corliss Engine

ALLIS-CHALMERS COMPANY,

General Office, CHICAGO, New York Life Bldg.

SOLE BUILDERS OF

Reynolds Corliss Engines

FOR ALL POWER PURPOSES.

ENGINES ESPECIALLY ADAPTED FOR

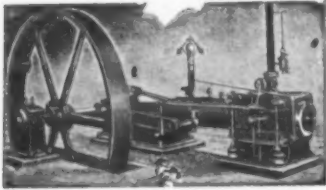
COTTON MILLS and COTTON OIL MILLS.

BRANCH
OFFICES

NEW YORK, Empire Building.
BOSTON, Board of Trade Building.
PITTSBURG, 1212 Frick Building.

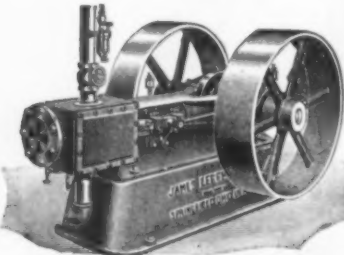
CHARLOTTE, N. C., Trust Building.
ATLANTA, GA., Equitable Building.

SOUTHERN ENGINE & BOILER WORKS, JACKSON, TENN.



—Builders of—

Corliss Engines, Slide-Valve Engines, Tubular Boilers and Saw-Mill Machinery.



We Make Automatic ENGINES

of 10 to 50 H. P., with finest Governing System, and will guarantee best possible regulation, with highest economy in steam. Also build Plain Slide-Valve Engines and

BOILERS From 3 H. P. up.

Pamphlet with full information, by stating wants and addressing

James Leffel & Co.

Box 126.

Springfield, Ohio., U. S. A.

THE C. & G. COOPER CO.

BUILDERS OF

HIGH GRADE

Cooper=Corliss ENGINES.

Complete Steam Plants
a Specialty.

Home Office and Works, MT. VERNON, O.

Branch Offices:

ATLANTA, 8 Austell Bldg.
CHARLOTTE, O. A. Robbins.
NEW YORK, 1022 Havemeyer Bldg.
BOSTON, 411 Weld Bldg.
CHICAGO, 1438 Monadnock Block.

We Build High-Class

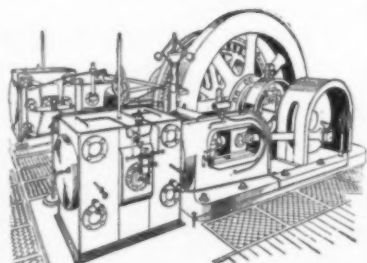
HEAVY ENGINES

OF LARGE POWER

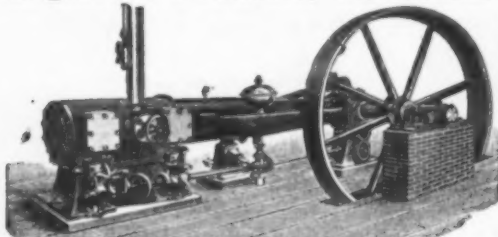
For Electric Lighting or Railways, Textile Mills, Cement Mills, or Factories, Ice Machines and Gas Engines.

STANDARD OR SPECIAL MACHINERY CONTRACTED FOR.

Unequaled facilities for large shop and foundry work. Correspondence solicited.
PENNSYLVANIA IRON WORKS CO.
50th St. and Lancaster Ave., Philadelphia.
New York, 136 Liberty St.



THE I. & E. GREENWALD CO. Engineers, Founders, Machinists and Millwrights.



Steam Engines,

Shafting, Hangers, Pulleys, Sprocket Wheels, Chains, Etc. Headquarters for Mill Gearing of all kinds and sizes. Steam Power Plants Complete.

WRITE FOR CATALOGUE.

720 E. Pearl St. CINCINNATI, O.



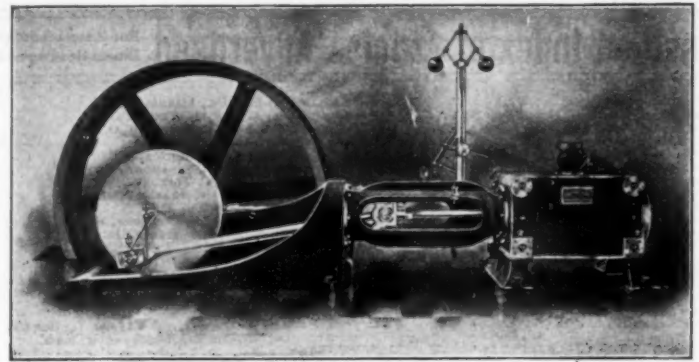
ALBANY GREASE

LUBRICATES EVERYTHING

Special Offer:

A sample can of grease and one ALBANY GREASE CUP free of charge or expense for testing.

MADE ONLY BY ADAM COOK'S SONS, 313 West Street, Branch, 31 S. Canal St., Chicago, Ill. New York City, U. S. A.



MONARCH CORLISS

Heavy Duty and Girder Frame.
The latest designs in Mechanical Engineering.
H. N. STRAIT MFG. CO.,

QUICK DELIVERIES.

Adams Street, Kansas City.



For Direct Connection

TO DYNAMO, OUR

Light Vertical Automatic Engines

have no superior. We have just brought out a line of direct connected sets which we know will interest you. Let us send you our Catalogue "N" and quote you prices. Both will surprise you.

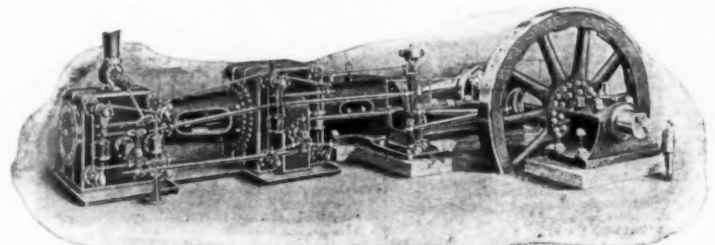
WM. E. HILL & CO.

North Park Street,

KALAMAZOO, MICH.

The WILLIAM TOD COMPANY,

Youngstown, Ohio.



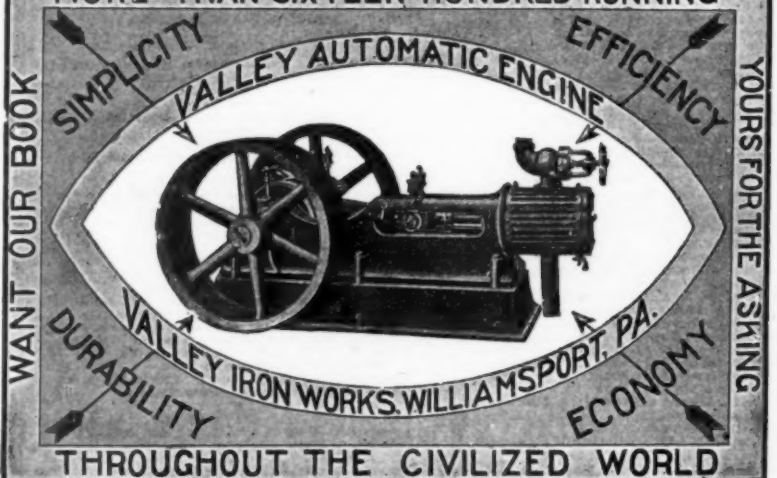
Corliss and Automatic Piston Valve Engines for Electric and Power Service

SOUTHERN AGENTS:

W. H. HUME & CO.,

BIRMINGHAM, ALA.

MORE THAN SIXTEEN HUNDRED RUNNING



Harrisburg Harrisburg Foundry & Machine Works, Engines HARRISBURG, PA., U. S. A.

Clas
Chester
Globe
Kenned
Pasaul
The Di
Sied
Easton
Frank
Genera
Pasaul
Boyle
Schro
Va. Bri
St.
Lalrob
Sten
Hulle
Mill
McMill
Stoc
Hulle
Middle
Nation
Stoc
Westin
Westin
Stor
Baltim
Sten
Belmon
Bourne
Chesap
Easton
Lareka
General
Gard
Globe
Moore,
Pasaul
Seafie,
Schreil
Virgin
Swit
Electric
Standar
Wesco
Westin
Tan
Caldwe
Flint &
Gard
Hammo
Harry
Hardley
Keller
Lombard
Means
McGaff
Petrole
Tollock
Seafie,
Schrofe
Smith
Tompki
Talk &
Virgin
Vogl, H
Wood, E
Tan
Caldwe
Cypress
Davis, G
Lewis, E
Tupelo
Tape
Lafkin
Tele
Barnbo
Tele
Alexand
Electric
Electric
Piedmon
Standar
Wesco
Tele
Electric
Houston
Internat
Standar
Tern
Merchan
Terr
Kriegsh
Remona
Stevens.
Text
Thre
Parquah
Cardwell
Gibbes,
Tin.
Americ
Tin
Americ
Merchan
Tires
Globe R
Lalrob
Toba
Buckey
Cardwell
Tools
Barnes,
Morre
Pratt, A
Tools
Rand Dr
Tools
Hagars
Tools
Terrel
Gem Mfg
Wall, P.
Towe
Caldwe
Flint & V
Tompki
Tow
Americ
Tram
Cahoon
New Jer
Hedel, J
Tram
Broderic
Caldwe
Cresson
Flory, S
Adrey M
Lidgerw
Link-B
McLana
Trenton
True
Barnes
Tub
Gem Mfg
Tubi
Ladlow
Turb
Turb
Westin
Westin
Turb
Koppel
Male C
Pamala
Virgin

Classified Index of Articles Advertised

For ALPHABETICAL INDEX See Page 32

Chester Steel Castings Co., Philadelphia, Pa.
Globe Rolling Mill, Cincinnati, O.
Kennedy, Walter, Pittsburgh, Pa.
Passaic Steel Co., Paterson, N. J.
The Diamond State Steel Co., Wilmington, Del.

Steel Buildings. (Designers, Builders.)
Kason Foundry & Machine Co., Easton, Pa.
Frank & Hase, Baltimore, Md.
General Supply & Construction Co., New York, N. Y.
Passaic Steel Co., Paterson, N. J.
Scaife, Wm. B., & Sons Co., Pittsburgh, Pa.
Schreiber, L., & Sons Co., Cincinnati, O.
Va. Bridge & Iron Co., Roanoke, Va.

Steel Couplers. (Automatic.)
Laird Steel & Coupler Co., Philadelphia, Pa.
Stencils.
Huller, John G., & Co., Baltimore, Md.
Stilla, (Turpentine.)
McMillan Bros. Co., Mobile, Ala.

Stock Certificates, Bonds and Seals.
Huller, John G., & Co., Baltimore, Md.
Middleton, J. W., & Co., Chicago, Ill.
National Seal Works, Richmond, Va.

Stokers. (Mechanical.)
Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.
Storage Receipts.
Baltimore Fidelity Warehouse Co., Baltimore, Md.

Structural Steel and Iron.
Belmont Iron Works, Philadelphia, Pa.
Bourne-Fuller Co., Cleveland, O.
Cheapeake Iron Works, Baltimore, Md.
Easton Foundry & Machine Co., Easton, Pa.
Eureka Supply Co., Chattanooga, Tenn.
General Supply & Construction Co., New York, N. Y.

Boiler & Mfg. Co., Girard, O.
Globe Rolling Mill, Cincinnati, O.
Moore, Edgar M., & Co., Pittsburgh, Pa.
Passaic Steel Co., Paterson, N. J.
Scaife, Wm. B., & Sons Co., Pittsburgh, Pa.
Schreiber, L., & Sons Co., Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.

Switchboards, Switches, etc.
Electrical Material Co., Baltimore, Md.
Standard Electric Co., Norfolk, Va.
Wesco Supply Co., St. Louis, Mo.

Tanks. (Iron and Steel.)
Caldwell, W. E., Co., Louisville, Ky.
Flint & Walling Mfg. Co., Kendallville, Ind.

Guard Boiler & Mfg. Co., Girard, O.
Hammond Iron Works, Warren, Pa.
Harry Bros. Co., Dallas, Tex.

Hartley Boiler Works, Montgomery, Ala.
Kaiser Co., E., Williamsport, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.

Means & Fulton Iron Works, Birmingham, Ala.
McGaffie & Kountz, Alliance, O.
Petroleum Iron Works Co., Washington, Pa.

Pollock, Wm. B., Co., Youngstown, O.
Scaife, Wm. B., & Sons Co., Pittsburgh, Pa.
Schofield, J. S., Sons, Co., Macon, Ga.

Smith Co., S. Morgan, York, Pa.
Tompkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.

Virginia Bridge & Iron Co., Roanoke, Va.
Yogi, Henry, Machine Co., Louisville, Ky.
Wood, R. D., & Co., Phila., Pa.

Tanks. (Wood.)
Caldwell, W. E., Co., Louisville, Ky.
Cypress Lumber Co., Apalachicola, Fla.

Davis, G. M., & Son, Palatka, Fla.
Lewis, H. E., & Co., Ltd., New Orleans, La.
Tupelo Tank Co., Mobile, Ala.

Tapes. (Measuring.)
Lofkin Rule Co., Saginaw, Mich.
Telephone Brackets.
Beasor Co., The, Philadelphia, Pa.

Telephones. (Supplies, Equipment.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electric Supply Co., Savannah, Ga.

Electrical Material Co., Baltimore, Md.
Piedmont Electric Co., Asheville, N. C.
Standard Electric Co., Norfolk, Va.

Wesco Supply Co., St. Louis, Mo.
Telephone Poles.
Electrical Material Co., Baltimore, Md.

Houston & Liggett, Louisville, Tenn.
International Crowing & Const. Co., Galveston, Tex.
Standard Pole & Tie Co., New York, N. Y.

Terne Plate.
Merchant & Co., Inc., Philadelphia, Pa.
Terra Cotta.
Kriegshaber, V. H., Atlanta, Ga.

Pomona Terra Cotta Co., Pomona, N. C.
Stevens, H., Sons, Co., Macon, Ga.
Textile Machinery. (See Cotton Mill Mach.

Threshers.
Parquhar, A. B., Co., York, Pa.
Cardwell Machine Co., Richmond, Va.

Gibbes, W. H., & Co., Columbia, S. C.
Tin. (Roofing.)
American Tinplate Co., New York, N. Y.

Tinplate.
American Tinplate Co., New York, N. Y.
Merchant & Co., Inc., Philadelphia, Pa.

Tires. (Automotive.)
Globe Rolling Mill, Cincinnati, O.
Laird Steel Co., Philadelphia, Pa.

Tobacco Machinery.
Buckley Iron & Brass Works, Dayton, O.
Cardwell Machine Co., Richmond, Va.

Tools. (Machine.) (See Machine Tools.)
Tools. (Machine.)
Barnes, W. F. & John Co., Rockford, Ill.

Morse Twist Drill & Machine Co., New Bedford, Mass.
Palk, A. J., & Son, Millersburg, Pa.
Frost & Whitney Co., Hartford, Conn.

Tools. (Pneumatic.)
Rand Drill Co., New York, N. Y.
Tools. (Finers.)
Niagara Machine & Tool Works, Buffalo, N. Y.

Tools. (For Rwy. Rep. Shops.) (See Port. Tools.)
Trenches.
Barn Mfg. Co., Pittsburgh, Pa.

Wall, P. Mfg. Co., Allegheny, Pa.
Towers. (Steel and Wood.)
Caldwell, W. E., Co., Louisville, Ky.

Flint & Walling Mfg. Co., Kendallville, Ind.
Tompkins, D. A., Co., Charlotte, N. C.
Towing Machines. (Auto. Steam.)
American Ship Windlass Co., Providence, R. I.

Traction. (Overhead.)
Coburn Iron Foundry & Machine Co., Coburn, N. Y.
New Jersey Fdy. & Mch. Co., New York, N. Y.

Spindel, J. G., Reading, Pa.
Traction. (Wire Rope.)
Broderick & Bascom Rope Co., St. Louis, Mo.

Caldwell, H. W., & Sons Co., Chicago, Ill.
Crescent Co., George V., New York, N. Y.
Flint & Walling Mfg. Co., Kendallville, Ind.

Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Engineering Co., Nicotown (Phila.), Pa.

McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Trenton Iron Co., Trenton, N. J.
Trucks and Drays. (Hand.)
Harns, W. F., Mfg. Co., Danville, Va.

Tube Cleaners.
Gem Mfg. Co., Pittsburgh, Pa.
Tubing.
Lidgerwood Mfg. Co., New York, N. Y.

Turbines. (See Water Wheels.)
Turbines. (Steam.)
Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.

Westinghouse Machine Co., Pittsburgh, Pa.
Turntables.
Koppel, Arthur, New York City.

Wain Co., Cincinnati, O.
Passaic Steel Co., Paterson, N. J.
Virginia Bridge & Iron Co., Roanoke, Va.

Valves.
Amer. Stem Gauge & Valve Mfg. Co., Jam. Plain, Mass.
Boston Belting Co., Boston, Mass.

Columbia Supply Co., Columbia, S. C.
Crosby Steam Gauge & Valve Co., Boston, Mass.
General Fire Extinguisher Co., Providence, R. I.

Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Jenkins Bros., New York, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.

Lunkenheimer Co., Cincinnati, O.
Simmons, John, Co., New York City.
Vorhees Rubber Mfg. Co., Jersey City, N. J.

Wolf, Fred, W., & Co., Chicago, Ill.
Wood, R. D., & Co., Philadelphia, Pa.
Veneer.
Burton Veneer Co., Montgomery, Ala.

Veneer Machines.
Coe Mfg. Co., The, Painesville, O.
Titus, E. E., Petersburg, Va.
Ventilators.
Downman-Deer Mfg. Co., Atlanta, Ga.

Morchant & Co., Inc., Philadelphia, Pa.
Wulff, W. C., & Co., Louisville, Ky.
Vices.
Reed Mfg. Co., Erie, Pa.

Wagon Builders' Mch. & Supplies.
Fay, J. A., & Egan Co., Cincinnati, O.
Washers. (Ore and Phosphate.)
Bailley-Lobley Co., The, Charleston, S. C.

Cameron & Barkley Co., Charleston, S. C.
McLanahan-Stone Co., Hollidaysburg, Pa.
Warehouse. (Fidelity.)
Baltimore Fidelity Warehouse Co., Baltimore, Md.

Watchman's Clocks.
Electrical Material Co., Baltimore, Md.
Imhäuser & Co., E., New York City.

Nant & Co., New York, N. Y.
Waggoner Watchman Clock Co., Grand Rapids, Mich.
Water Power.
Roanoke Navigation & Water Power Co., Weldon, N. C.

Waterproof Cellar Engineer.
Gilbreth, Frank B., Boston, Mass.
Water-Wheel Governor.
Reologie Governor Works, Akron, O.

Water Softening Apparatus. (Purifying.)
Scaife Wm. B., & Sons Co., Pittsburgh, Pa.
Water-Wheels and Turbines.
Lane Mfg. Co., Montpelier, Vt.

Lefel, James, & Co., Springfield, O.
Munson Bros. Co., Utica, N. Y.
Norris, Burham & Co., Inc., Glen Rock, Pa.

Bladon-Alcott Turbine Co., Mount Holly, N. J.
Smith Co., S. Morgan, York, Pa.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.

Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.
Westinghouse Mch. Co., Pittsburgh, Pa.
Wolf Co., Chambersburg, Pa.

Water Motors.
Pittsburgh Meter Co., E. Pittsburgh, Pa.
Worthington, Henry R., New York, N. Y.

Water-Works Supplies.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Pomona Terra Cotta Co., Pomona, N. C.

Stevens, H. Sons, Co., Macon, Ga.
U. S. Cast Iron Pipe & Foundry Co., Chicago, Ill.
Wood, R. D., & Co., Philadelphia, Pa.

Weighing Machinery. (Automatic.)
Richardson Scale Co., New York, N. Y.
Well Contractors. (Oil, Artesian, etc.)
Andrews, Perry & Bro., Atlanta, Ga.

Bacon Air Lift Co., New York, N. Y.
Cook Well Co., St. Louis, Mo.
Ford, Isaac H., New York, N. Y.

Well Tools and Supplies.
Andrews, Perry & Bro., Atlanta, Ga.
Bacon Air Lift Co., New York, N. Y.

Cook Well Co., The, St. Louis, Mo.
Ford, Isaac H., New York, N. Y.
Kelly & Tanehill Co., Waterloo, Ia.

Williams Bros., Ithaca, N. Y.
Wheelbarrows and Trucks.
Jackson Mfg. Co., Harrisburg, Pa.

Kilbourne & Jacobs Mfg. Co., Columbus, O.
Whistles. (Chimes, Sirens, etc.)
Amer. Stem Gauge & Valve Mfg. Co., Jam. Plain, Mass.

Crosby Steam Gauge & Valve Co., Boston, Mass.
Lunkenheimer Co., Cincinnati, O.
White Lead.
French, Samuel H., & Co., Philadelphia, Pa.

Windlasses. (Steam, Electric & Hand.)
American Ship Windlass Co., Providence, R. I.
Windmills.
Flint & Walling Mfg. Co., Kendallville, Ind.

Window Frames. (Fireproof.)
Wulff, W. C., & Co., Louisville, Ky.
Window Guards. (Wire.) (See Wire Goods.)
Wire. Barbed Wire, etc.

Broderick & Bascom Rope Co., St. Louis, Mo.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Roehling's, J. A., Sons Co., Trenton, N. J.

Wire Cloth. (Iron, Steel, Brass, etc.)
Buffalo Wire Works Co., Buffalo, N. Y.
Caldwell, H. W., & Sons Co., Chicago, Ill.

Meyers, Fred, J., Mfg. Co., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.
Wire Goods.
Bollas Iron & Wire Works, J. E., Detroit, Mich.

Buffalo Wire Works Co., Buffalo, N. Y.
Dufur & Co., Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.

Lidgerwood Mfg. Co., New York, N. Y.
Meyers Mfg. Co., The, Fred J. Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Netting.
Buffalo Wire Works Co., Buffalo, N. Y.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Rope.
Broderick & Bascom Rope Co., St. Louis, Mo.
Contractors Plant Mfg. Co., Buffalo, N. Y.

Hasard Mfg. Co., Wilkes Barre, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Roehling's John A., Sons Co., Trenton, N. J.

Wire Rope Filler.
Broderick & Bascom Rope Co., St. Louis, Mo.
Ironclads Co., Columbus, O.

Wire Rope Shields.
Ironclads Co., Columbus, O.
Wire Rope Thimbles.
Broderick & Bascom Rope Co., St. Louis, Mo.

Jackson Mfg. Co., Harrisburg, Pa.
Woodboring Machines. (Pneumatic.)
Rand Drill Co., New York, N. Y.

Woodsplitting Machines.
Fay, J. A., & Egan Co., Cincinnati, O.
Woodworking Machinery.
Chattanooga, Machinery Co., Chattanooga, Tenn.

Coe Mfg. Co., The, Painesville, O.
De Leach Mill Mfg. Co., Atlanta, Ga.
Fay, J. A., & Egan Co., Cincinnati, O.

Gibbes, W. H., & Co., Columbia, S. C.
Hernance Mch. Co., Williamsport, Pa.
Huther Bros., Rochester, N. Y.

Lane Mfg. Co., Montpelier, Vt.
Leland, F. J., Kenton, Tenn.
Miller Oil & Supply Co., Indianapolis, Ind.

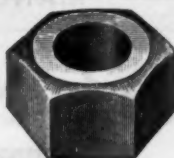
Mohannan Mfg. Co., Philadelphia, Pa.
Ober Mfg. Co., Chagrin Falls, O.
Root, B. M., York, Pa.

Shimer, Samuel J., & Sons, Milton, Pa.
Smith-Courtney Co., Richmond, Va.
Smith, H. B., Machine Co., Smithville, N. J.

Stratton & Bragg Co., Petersburg, Va.
Walke, Henry Co., Norfolk, Va.
Whitney, B. D., & Son, Winchendon, Mass.

Zinc.
Merchant & Co., Inc., Philadelphia, Pa.
New Jersey Zinc Co., New York, N. Y.

Cold Punched Nuts!



We want your trade in Cold Punched Nuts—Plain, Chamfered, Trimmed and Reamed, Finished and Semi-Finished. They are made of Double Refined Bar Iron, true to size and well finished. It will pay you to get our prices.

The Milton Mfg. Co., Milton, Pa.

Gas and Gasoline Engines COLUMBUS

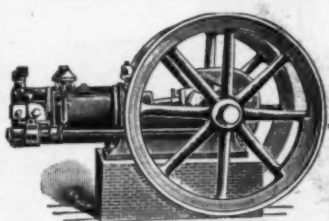
Send for CATALOGUE G. COLUMBUS MACHINE CO. Columbus, Ohio.

"LITTLE GIANT" STEAM OUTFITS

will make you happy. Sizes 1½ to 10 h. p. In use several years. Simple, durable and powerful. Send for circular and price list.

BALTIMORE ENGINE CO.

227½ N. Calvert St., Baltimore.



THE "penny wise and pound foolish" policy has an apt illustration in the man who buys a cheap gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over the small saving in first cost. The "OTTO" is the original and best. Suppose it does cost a little more money, the extra dollars are well invested. 70,000 users throughout the civilized world support us in this claim.

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

Representatives for Virginia and the Carolinas, SMITH-COURTNEY CO., Richmond, Va.

The Ball & Wood Company,

OFFICE: 17 Battery Place, New York.

WORKS: Elizabeth, N. J.

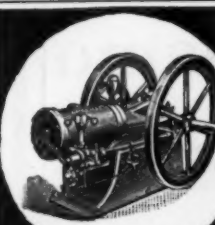
Western Office, Room 1247 Marquette Building, Chicago, Ill.

DESIGNERS and BUILDERS of

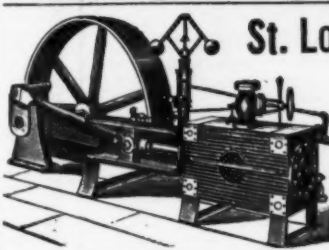
High-Grade Improved Engines

For Any Service

Our catalogue describes the Ball & Wood type of four-valve, Simple, Cross and Tandem Compound Engines, Vertical or Horizontal, for Belted or Direct Connected service. It will be sent on application.



THE "BLAKESLEE" GAS AND GASOLINE ENGINE STANDS SUPREME LET US TELL YOU WHY BLAKESLEE MFG. CO. BIRMINGHAM, ALA.



St. Louis Iron & Machine Works,

100 Chouteau St., ST. LOUIS, MO.

BUILDERS OF

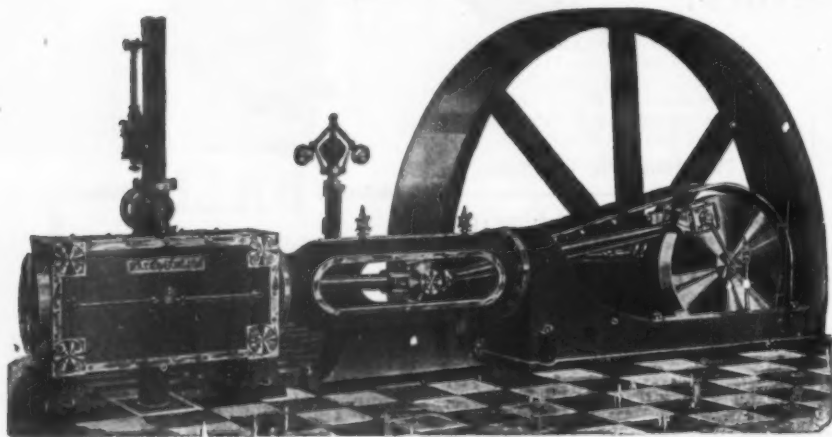
St. Louis Corliss Engine

50 to 2000 H. P.

Brick Machinery.

SEND FOR OUR NEW CATALOGUE.

Bates=Corliss



50 to 2000 H. P.

Simple, Cross and Tandem Compounds,

BELTED OR DIRECT CONNECTED,

Heavy Duty Engines,

Best Economy in Fuel and Steam. Close Regulation.

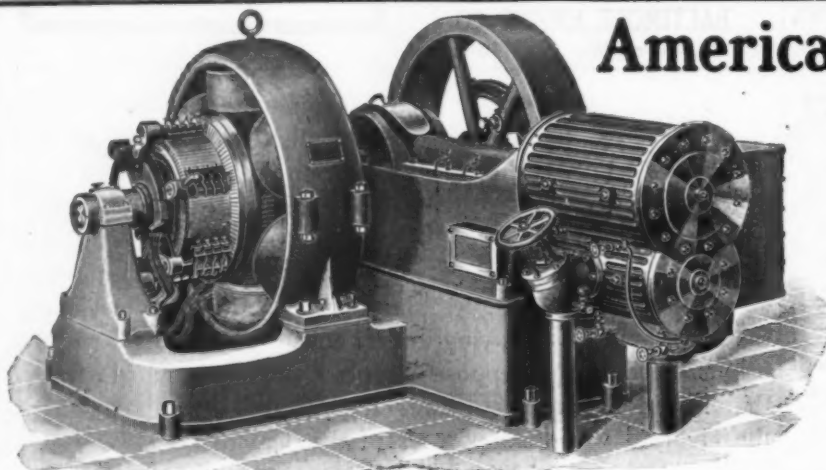
Bates Machine Company, - - - Joliet, Ill.

EASTERN AGENCIES:

SMITH-COURTNEY CO., RICHMOND, VA.

H. M. SCIPLE, PHILADELPHIA, PA.

LUDWIG & CO., Agents, Atlanta, Ga.



American-Ball ^{DUPLEX} COMPOUND Engine

and Direct Connected Generator

SAVES 25%

American engines lead in the markets of the world, and the American-Ball Duplex Compound Engine is at the head.

It is a marvel of simplicity, requires no more floor space than the simple engine, and it SAVES 25 PER CENT OF THE FUEL, without a condenser.

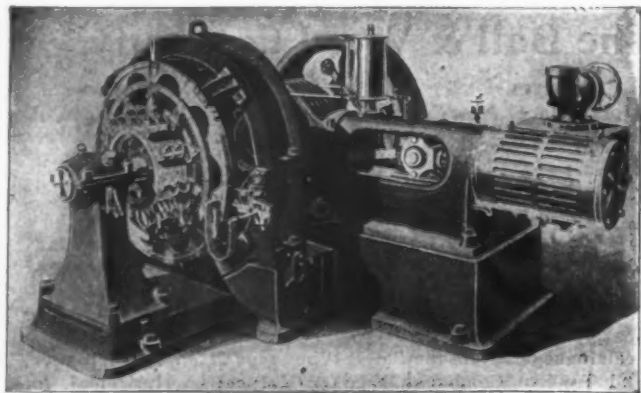
We furnish complete plants, consisting of engines, generators and motors all of our own manufacture.

AMERICAN ENGINE CO.

New York Office: 95 Liberty Street.

A. St.C. Dunstan, Southern Agent, Auburn, Ala.

60 Raritan Ave., BOUND BROOK, N. J.



Ridgway Dynamo

Thompson-Ryan Patents

is the only generator provided with special coils for balancing armature reaction and securing perfect commutation with absolutely fixed brushes. We guarantee higher efficiency at light loads and a greater range of uniform economy than any other generator built.

Automatic Engine ^{McEwen} Patents

is guaranteed not to run one revolution slower when fully loaded than when running empty, and a reduction of boiler pressure from the greatest to that necessary to do the work will not reduce the speed of the engine one revolution.

RIDGWAY DYNAMO & ENGINE CO., RIDGWAY, PA.

85-89 Liberty St., New York. Exchange Bldg., Boston. Caxton Bldg., Buffalo.
Girard Bldg., Philadelphia. Wm. Sharpe, 184 La Salle St., Chicago.
Great Western Mfg. Co., 1221-1223 Union Ave., Kansas City, Mo.

Handsome Catalogue on Application.

"The BERRYMAN" Feed-Water Heater and Purifier

PROVIDED WITH U-SHAPED TUBES.

It Never Leaks.

"THE HIGHEST GRADE ONLY."

Our Catalogue contains the representative names of a large number of contented buyers of

BERRYMAN HEATERS

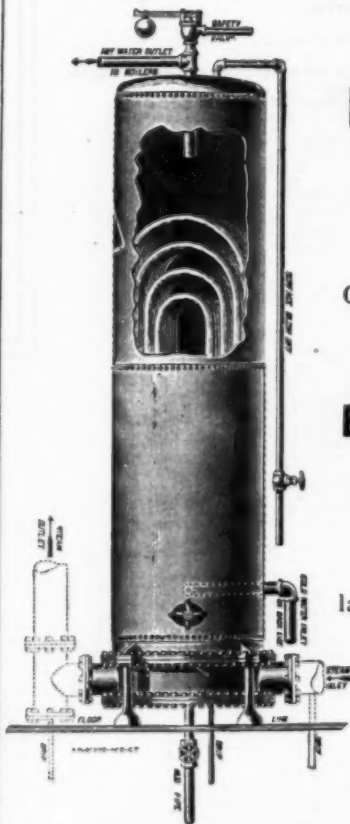
built by us in last twenty years.

For prices, catalogue and particulars, apply

THOMAS McADOO,

125 N. 4th St., PHILADELPHIA, PA.

I. B. DAVIS & SONS, Makers,
Hartford, Conn.



ELKHART FROG & CROSSING WORKS, Elkhart, Ind.
FROGS, SWITCHES, CROSSINGS, STANDS, ETC.

The National Feed-Water Heaters.

1,000,000 Horse Power in Daily Use.

Save Money

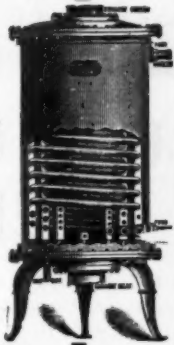
by utilizing exhaust steam for delivering Feed-Water to the boiler at a temperature of 212° F.

Beware of imitations with less heating surface. We manufacture the Original and Only Genuine first-class Coil Feed-Water Heater.

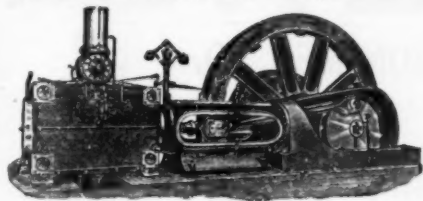
Write for Catalogue.

The National Pipe Bending Co.

97 Lloyd Street, - NEW HAVEN, CONN.



THE HOOVEN, OWENS, RENTSCHLER CO., HAMILTON, OHIO.



C. C. Moore & Co., San Francisco, Cal.

Hamilton Corliss Engines.

Engines for Rolling Mills, Electric Railways, Electric Light and Cotton Mills.

Engines of all Sizes and for all Purposes

1127 Marquette Bldg., Chicago.
39 and 41 Cortlandt St., New York.
Laclede Bldg., St. Louis, Mo.
403 Equitable Bldg., Atlanta, Ga.

Saving Water.

Fresh water for steam boilers not only costs money to heat, but in cities the cost of water itself is an important item.

Webster Feed-Water Heaters and Purifiers

utilize all available drips from drying kilns, heating coils, etc., which are suitable for boiler feed or other purposes, and thus automatically save water as well as heat. Their economy of both is remarkable.

Ask the best engineers, and send for booklet.

Warren Webster & Co.

Camden, N. J.

McCLAVE'S These appliances combine valuable features for burning the smaller sizes of hard and soft coal, such as Anthracite, Cannel, Birdseye, Buckwheat and Bituminous Slack, while the grate alone stands unequalled for burning the larger sizes of these fuels with natural draught. The Argand Blower gives EXCELLENT RESULTS in burning Spent Tan, Sawdust, Bagasse, etc. For full For Boiler and particulars send for illustrated other furnaces. Descriptive Catalogue C.

McCLAVE-BROOKS CO., Scranton, Pa.

SMITH-COURTNEY CO.

Richmond, Va.

SOUTHERN AGENTS FOR THE

Improved Bates Corliss Engine

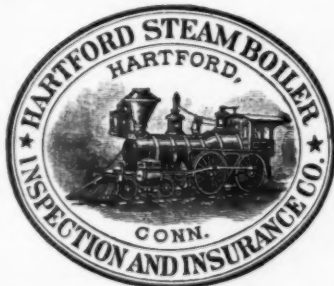
FROM 50 TO 1000 HORSE-POWER.

THE ENGINE for Cotton Mills and Large Factories.
Also full line of Engines, Boilers, Iron and Woodworking Machinery and Pumps. Largest stock of Railroad, Mine and Mill Supplies in the South.

THE BABCOCK & WILCOX CO.

Water Tube Steam Boilers.

85 Liberty St., New York.
Empire Building, ATLANTA.
339 Carondelet St., NEW ORLEANS.



Thorough Inspections

And Insurance against Loss or Damage to Property, and Loss of Life and Injury to Persons caused by

Steam Boiler Explosions.

J. M. ALLEN, President.
W. B. FRANKLIN, Vice-President.
F. B. ALLEN, 2d Vice-President.
J. B. PIERCE, Secretary.
L. B. BRAINERD, Treasurer.
L. F. MIDDLEBROOK, Asst Sec'y.

THE HENRY WATKINS CO.

NORFOLK, VA.

Chandler & Taylor Co.'s Automatic Cut-off and Throttling Steam Engines, Boilers and Saw Mill Machinery, Lodge and Shipley Lathes, Bickford Radial Drills, Cincinnati Shapers, Cincinnati Planers, Cincinnati Machine Tools, Vertical Drills, Cincinnati Milling Machines. Also high-class Wood-working Machinery, Pumping Machinery, Pneumatic Machinery.

Insure Your Steam Boilers

WITH THE

Maryland Casualty Co.

OF BALTIMORE.

Inspections made promptly, regularly and thoroughly by experienced men of proved ability. Agents throughout the United States.

Surplus and Reserve for Policyholders over \$2,250,000.00.

JOHN T. STONE, President.

IMPROVED BERRYMAN

Water Tube

FEED WATER HEATER AND PURIFIER.

Its PERFECT CIRCULATION of the water gives the highest degree of heat obtainable with the use of exhaust steam.

Provided with U SHAPED SEAMLESS DRAWN BRASS TUBES and so constructed that it CANNOT LEAK under the highest boiler pressure it is possible to carry.

Built compactly and designed with special reference to meeting the requirements of modern plants, and give continuous efficient service under the most severe conditions.

We also make special heaters for all purposes, for heating oils, acids and other liquids. If you need anything out of the ordinary, our experience is at your command.

BENJ. F. KELLEY & SON,

Manufacturers, 91 Liberty St., N. Y. Works, Brooklyn, N. Y.



Shepherd Steam Engines

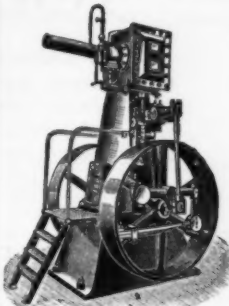
For All Service.

SINGLE EXPANSION AND COMPOUND.

Shepherd Engineering Co.

Box M.

FRANKLIN, PA., U. S. A.

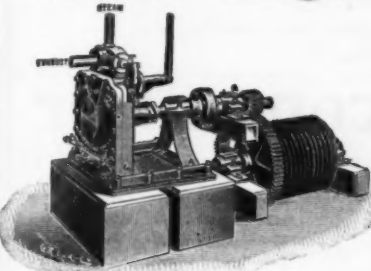


Dake Engine Company,

Grand Haven, Mich.

Manufacturers of

Dake Steam Feeds Hoisting Engines, Air Motors, Etc.



Internal Furnace Boiler.

Economical in first cost, space, fuel and maintenance.

Portable and self contained.

Burns lowest grades of fuel.

Readily accessible for cleaning.

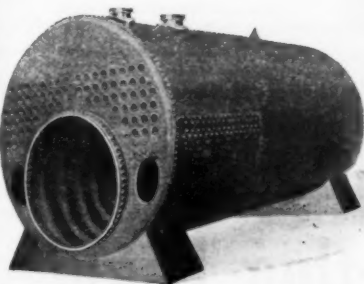
No masonry setting.

No cast-iron fronts or castings.

Designed for any pressure—Absolutely safe.

SEND FOR CATALOG R.

E. KEELER CO., Williamsport, Pa.



BOILERS

With Rivet Holes Drilled after Plates are Bent and in Position. Tanks and Sheet Iron Works, Engines, Cotton Gins and Presses. Machinery for Fertilizer Works and Phosphate Washers, Asbestos Magnesia Pipe Covering and Magnesia Cement Felting for Boilers, Domes, Steam Piping, etc.

VALK & MURDOCH IRON WORKS, Charleston, S. C.

ATLAS

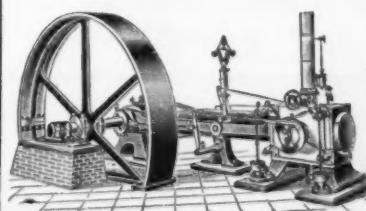
Engines and Boilers

Simple, Strong, Durable and Economical.

Standard Types and Sizes.

Atlas Engine Works.
Indianapolis.

Dept. M.

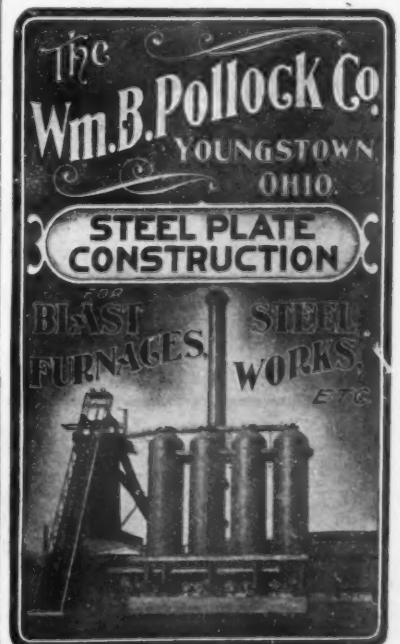


Corliss, Slide Valve & Hoisting Engines, BOILERS OF ALL STYLES AND SIZES.

THE MURRAY IRON WORKS CO.

BURLINGTON, IOWA.

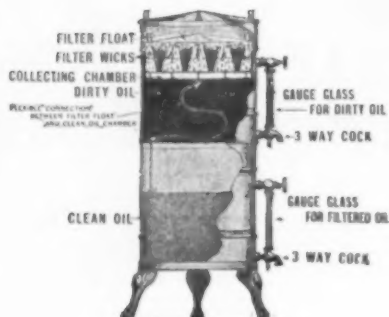
Incorporated February 1, 1870.



THE STANDARD UNION COUPLING IS THE DART PATENT
 Manufactured by the E. M. Dart Mfg. Co. Providence Rhode Island

Specify The American Thompson Improved Indicator.

AMERICAN STEAM GAUGE & VALVE MFG. CO., BOSTON, MASS.



CAPILAR OIL FILTER

AGENTS FOR PACIFIC COAST—THE HOLLAND CO., SAN FRANCISCO.

IF YOU USE OIL YOU NEED OUR FILTER.

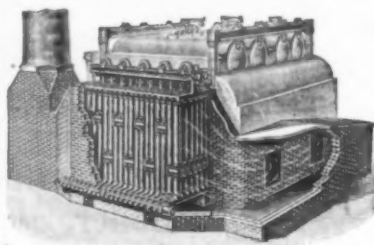
Our CAPILAR OIL FILTER is based upon the principle of capillary action, the oil passing upward through a series of wicks, leaving the foreign matter behind. It is impossible for dirt to pass the wicks. About 90 per cent. of the oil used on your machinery is recoverable, and as a filter is requisite to the frugal operation of your plant, why not use the best—THE CAPILAR?

Write for Booklet J4.

The Capilar Co., 136 South Fourth St., Philadelphia.

In designing new steam plants, or remodeling old,
the installing of a

Green's Economizer



should be one of the first considerations. Saves its cost many times over. Fuel bill alone reduced 10 to 20 per cent. outside of the saving in boiler repairs; increased capacity of boilers; heating entire plant without additional cost through use of gases otherwise wasted. Our booklet is interesting, even if not ready for installing.

The Green Fuel Economizer Co., Matteawan, N. Y.

SOLE MANUFACTURERS IN THE U. S. A.

RAWSON & MORRISON MFG. CO.

CAMBRIDGEPORT, BOSTON, MASS.

Standard and Eastern

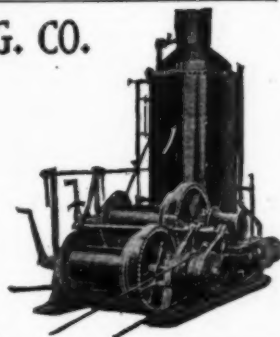
HOISTING ENGINES,

CABLEWAYS and AUTOMATIC COAL

HANDLING MACHINERY.

NEW YORK OFFICE,
 No. 11 Broadway.
 BALTIMORE,
 107 Maryland Trust Bldg.

CHICAGO,
 45-50 Lake St.
 MONTREAL, CAN.
 WRITE FOR CATALOGUE C.



The Hayward Excavating Dredging Bucket, "Orange Peel" and "Clam Shell" Buckets.



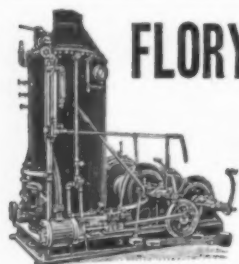
Dredges, Excavators, Travelling Derricks, Railroad Excavators, Derrick Fixtures.

APPLIANCES FOR HANDLING COAL AND ALL MATERIALS.
 Send for New Illustrated Catalogue.

The Hayward Company,

97 Cedar Street,

New York.



FLORY Hoisting Engines

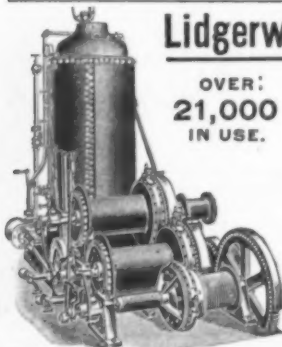
Specially adapted for Contractors, Pile Driving Quarry and Mine Duty.

Cableways and Conveying Machinery a specialty.

State Mining and Working Machinery—a complete line.

S. FLORY MFG. CO.,

Bangor, Pa



Lidgerwood HOISTING ENGINES

OVER:
 21,000
 IN USE.

Are STANDARD for Building Purposes, Pile Driving, Excavating, etc.

CABLEWAYS,

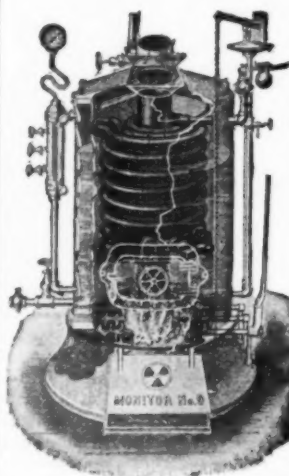
HOISTING and CONVEYING DEVICES, for Mining, Quarrying, Steam Logging.

SEND FOR CATALOGUES.

Lidgerwood Mfg. Co.

96 LIBERTY ST. NEW YORK.

Chicago. Atlanta. Cleveland. Boston. Philadelphia. New Orleans. Portland, Ore. Pittsburg.



For Churches and Schools

as well as for stores and dwellings, there is no heating appliance to compare with

Monitor Steam and Hot Water Boilers.

If you think this is brag send for testimonials.

Monitor Steam Generator Mfg. Co.

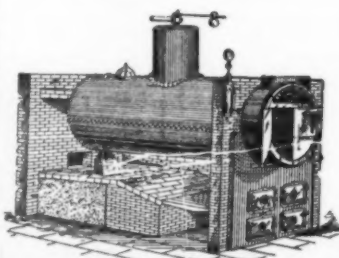
OFFICE AND SALESROOM:

Brewers' Exchange Building,

Fayette and Liberty Sts., BALTIMORE, MD.

U. J. BOSSLER, MANAGER.

Home Office and Works, LANDISVILLE, PA.



Engines, Boilers, Smoke Stacks, Tanks,

Injectors, Inspirators,
 Saw Mill Machinery,
 Shafting, Pulleys,
 Hangers, Etc.

J. S. SCHOFIELD'S SONS CO.,

MACON, GA.

Specify
LUNKENHEIMER
 Steam Traps
 "Every inch a trap"

SEPARATORS, STEAM PUMPS, INDICATORS.

NICE CATALOG FREE

SHAKING GRATES, FURNACE GLOVES, SCRAPERS, STEAM PUMPS, OPENING & CLOSING, STEAM SPECIALTY, ST. MARION ST., SCRANTON, PA.

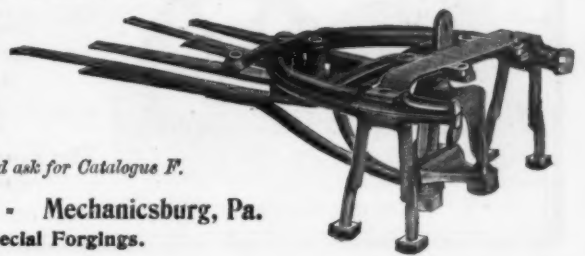
MAY 1900

Rear King Bolt Brewster Gear Set No. 8 A.

INTEGRAL HEAD BLOCK PLATE.



The finest Rear King Bolt Gear Set ever produced. The strongest of selling points for your line of vehicles. Furnished all wrought or with malleable parts. All made to fit regular gear woods. No special woods required. Guaranteed not to rattle.



Write for prices and ask for Catalogue F.

THE D. WILCOX MANUFACTURING CO. - Mechanicsburg, Pa.
Manufacturers of Carriage Hardware and Special Forgings.

RELIANCE



Safety Water Columns

Save Fuel, Repairs, Stoppages. ECONOMY. SAFETY.

We urge our patrons to see that the name "Reliance" is cast on all columns. No other person or corporation is authorized to manufacture Reliance Steam Specialties.

The Reliance Gauge Column Co. SOLE MFRS. CLEVELAND, O.

79 E. Prospect St.

Contractor's Plant Mfg. Co., Ltd.

MANUFACTURERS OF

STEAM, HORSE and HAND POWER

Hoisting Machines

DERRICK IRON and CONTRACTORS' SUPPLIES. MANUFACTURERS OF WIRE ROPE.

129 Erie Street, Buffalo, N. Y.
Mention this Journal.

BOILERS AND ENGINES.

Tanks, Stacks, Stand Pipes and Sheet Iron Work: Shafting, Pulleys, Gearing, Boxes, Hangers, etc. Mill Castings.
Cast every day; work 180 hands.
Lombard Iron Works & Supply Co. AUGUSTA, GEORGIA.

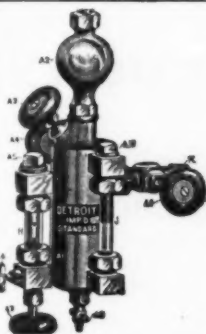
Texas Petroleum

The most economical fuel for Furnace and Mill Work, Forging and Rivet Furnaces, Puddling and Annealing Furnaces, Reheating Furnaces of all kinds. Prompt shipments made from New York, Philadelphia, New Orleans, Tampa or Port Arthur, Texas.

Correspondence Solicited.

Gulf Refining Co., Refiners

General Office: 814 Frick Building, Pittsburg, Pa.



THE DETROIT SIGHT FEED LUBRICATORS

possess all the improvements and good features that have been suggested by our own and our customers' experience during the past 20 years.

They are being used by more than nine-tenths of the prominent American engine builders, who are good judges of lubricators. Many of these have used them continuously for more than 15 years.

There are more than 550,000 Detroit Sight Feed Lubricators in use, or more than all other styles combined.

Use the Detroit Lubricators and you will be in good company. Our New Catalogue, showing our full line, will be sent on application.

DETROIT LUBRICATOR CO.,

DETROIT, MICH.



GLASS BODY OIL PUMPS.

Steel Brazed Pyramid Torches.

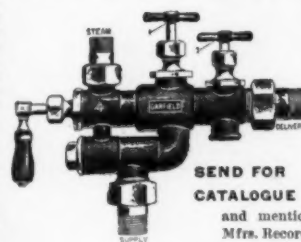
Made of the best quality of heavy sheet steel. Nicely finished and very durable.



Brazed with hard spelter solder, which will not melt at welding heat.

GEM MFG. CO.

Pittsburg, Pa.

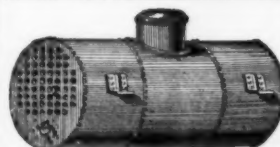


THE GARFIELD DOUBLE JET INJECTOR

Starts at 15 lbs., increases capacity as steam goes up, and gives a steady flow of water at all times. Lifts 25 ft. Works hot water up to 150 degs. under proper conditions.

SEND FOR CATALOGUE and mention Mrs. Record.

THE OHIO INJECTOR CO.
Wadsworth, Ohio.



HARTLEY'S BOILER WORKS,
Boilers, Stand Pipes, Tanks,
Smoke Stacks, etc., etc. MONTGOMERY, ALA.

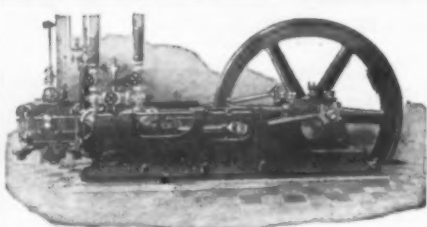
S. MILNOR PRICE, Pres. V. BACIGALUPO, Vice-Pres. WALTER L. GRAHAM, Secy.

S. M. PRICE MACHINERY CO., Inc.
NORFOLK, VA.

—SELLING AGENTS—

ERIE CITY IRON WORKS, Engines and Boilers.
AMERICAN TOOL WORKS CO., Lathes, Planers, Shapers, Radial Drills, Boring Mills and Vertical Drills.
LAIDLAW-DUNN-GORDON CO., Steam Pumps, Air Compressors and Condensers.
MIDDLETOWN MACHINE CO., Gas and Gasoline Engines.
DODGE MFG. CO., Wood and Iron Pulleys, Hangers, Shafting, etc.
LAMBERT HOISTING ENGINE CO., Hoisting and Log Skidding Machinery.
DETROIT OAK BELTING CO., Pure Oak Lace Belt.
LUNKENHEIMER CO., High-Grade Steam Specialties.

Specify
LUNKENHEIMER
Automatic Injectors
"Tried and tested"



The Linde

Designed to meet all requirements where high grade

Ice and Refrigerating Machinery

Is desired. Drop us a postal for literature.

The Fred W. Wolf Co.
CHICAGO.

5000 IN OPERATION.

Atlanta. Townsend Bldg., New York. Ft. Worth.



Ice and Refrigeration

For the cheap production of ice and for reliable refrigeration you can make no mistake by installing a BARBER plant. We make all of our installations in the most careful and conscientious manner and furnish the strongest kind of guarantee. Write us for catalogue and list of users. While we have devoted special attention to small plants our larger ones are among the finest in the country.

CREAMERY PACKAGE MFG. CO.

Successor to A. H. BARBER MFG. CO.

REFRIGERATING MACHINE DEPT., 1142-1158 W. 16th St., CHICAGO, ILL.

"SOLVAY" CHLORIDE OF CALCIUM SOLID AND FLUID.

The Best Dryer for Air in Cold Storage Houses.
Makes the Strongest Ice Machine Brine for the Least Money.
Send for Calcium Circular and Prices.

CARBONDALE CHEMICAL CO.,

New York Office, 141 Broadway.
Boston Office, 544 Tremont Bldg.

Carbondale, Pa.

Pittsburg, 727 Park Building.
Chicago, 61 Portland Bldg.

THE MAKING OF A GOOD MACHINE



An ice machine is only as good as its weakest part—its poorest fitting.

All York fittings are subjected to an air test under water and are guaranteed to stand a working pressure of 300 pounds.

The same care and precaution is taken with every detail of construction. No part that has not been proved perfect, can find its way into York ice-making and refrigerating machines.

The York Standard is simple, durable, substantial and economical—is as good a machine as our long experience and unlimited facilities will enable us to build.

We invite the most critical inspection and comparison.

If you contemplate putting in an ice or refrigerating machine, write for catalog No. 4.

YORK MANUFACTURING CO., YORK, PA.

Ice-Making and Refrigerating Machinery and Ammonia Fittings.

"STERLING"

ICE and REFRIGERATING MACHINERY

Built for any capacity— $\frac{1}{4}$ Ton upwards.

Strongest Guarantee

as to

Efficiency

Economy

Durability

Complete Ice Making and Refrigerating Plants designed and installed.

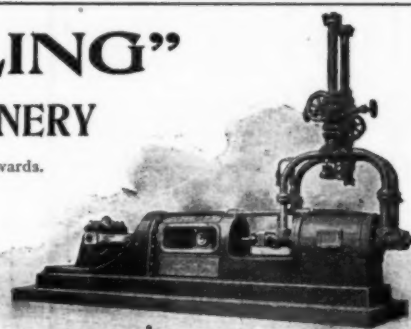
Sterling Machines have special features that make them superior to all others in the most essential points.

Correspondence invited. Information cheerfully and promptly given.

THE UNITED IRON WORKS CO.

Capital Stock \$650,000.00

SPRINGFIELD, MO.



"STERLING" Double Acting Ammonia Compressor. Direct Connected or Belt Driven.

Missouri State Building at World's Fair will be cooled by a "Sterling." Largest building in the world cooled artificially for personal comfort.

Columbus Iron Works Company,

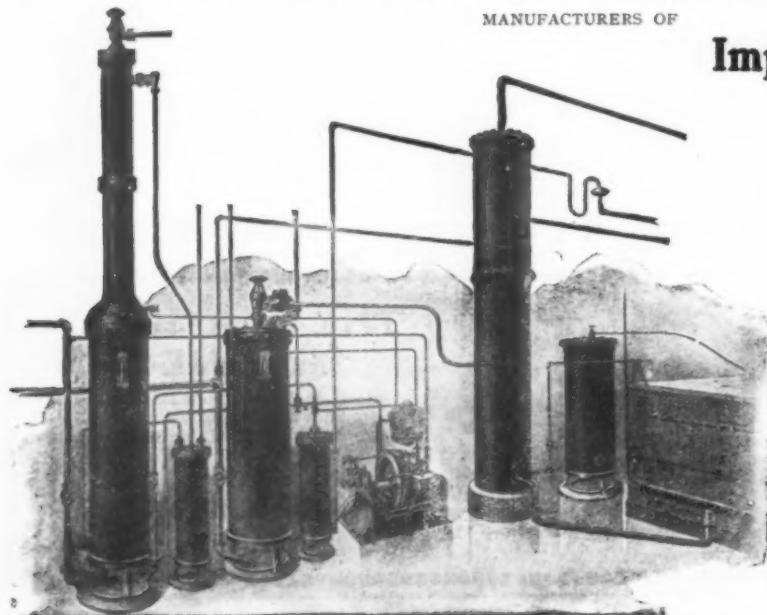
MANUFACTURERS OF

Improved Absorption Ice Machines.

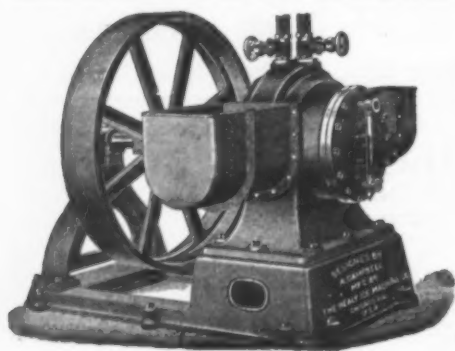
Ice Machine Repairs and Parts of all Kinds.

From Five Ton Daily Capacity Up.

All coils made from strictly extra heavy wrought iron pipe. Ammonia valves, flanges and fittings. Duplex fly wheel ammonia pumps. Estimates furnished upon application.



COLUMBUS IRON WORKS COMPANY, COLUMBUS, GA.



Our Improved Compression Ice AND Refrigerating Machines

are Economical and Simple in Operation, built from 1 ton up to 100 tons capacity.

"Single and Double Acting."

The machines now in operation prove it to be the most successful machine on the market. Write for information.

Healy Ice Machine Company.

Chicago, Ill.

JOHN H. MURPHY, New Orleans Boiler Works.

High Grade Boilers, all Types, Built to Order.

633-43 Magazine St., NEW ORLEANS.

Boilers, Stacks, Tanks.

McGaffie & Kountz, Alliance, O.

GAS ENGINES,

Carbonic Anhydride Refrigerating Machinery

SEND FOR CATALOGUE.

THE BROWN-COCHRAN COMPANY,
LORAIN, OHIO.

Large advertisement next week.

Frick Company,

Waynesboro, Pa.

New York Office, 39-41 Cortlandt St.

ICE MAKING AND REFRIGERATING MACHINES.

Corliss Engines.

Condensing, Non-Condensing and Compound.

Steam Boilers, Traction and Portable Engines, Saw Mills, &c.

Catalogue on application.

ARCTIC Ice Making and Refrigerating MACHINES.

Ammonia Fittings and Valves,
Tanks, Cans, Boilers and Supplies of All Kinds.
24 Years' Successful Use.

Chicago, 18 W. Randolph St.
Kansas City, Mo.,
Room 608 Postal Bldg.
Houston, Texas, 1909 Rusk Ave.

The Arctic Machine Co.
Main Office and Works, CANTON, O.

Remington Ice and Refrigerating Machines.



COMPLETE PLANTS
INSTALLED AND
GUARANTEED : : :
ICE MAKING—
CAN OR PLATE SYSTEM
REFRIGERATION—
DIRECT EXPANSION
OR BRINE SYSTEM

The REMINGTON Ice Machine is the
STANDARD Machine of small capacity. Beware of IMITATIONS, buy
the ORIGINAL, it is the best.

Manufactured only by
Remington Machine Co.
Wilmington, Del.

WATER SUPPLY OUTFITS



For Manufacturing Plants,
Railroads, Small Villages and
Private Residences.

Galvanized Steel
"STAR" COLUMN TOWERS,
Any Height.

Galvanized Steel, Pine or Cypress
TANKS, any Capacity.

STAR WIND MILLS,

Galvanized Steel or Wood, adapted
for farm, residences, power
or irrigating purposes.

"HOOSIER" and "FAST MAIL"
IRON PUMPS.

WRITE FOR CATALOGUE.

Designs and Prices Furnished.



SUBURBAN OUTFIT.

FLINT & WALLING MFG. CO., 516 Oak Street,
KENDALVILLE, IND.
EASTERN OFFICE—96 Wall St., New York, N. Y.

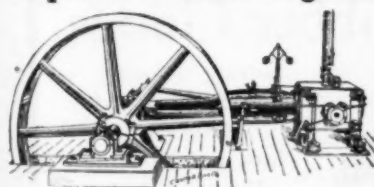
HARTFELDER-GARBUTT CO.

Mill and Railroad Supplies, Machinery, Engines and Boilers.
301, 303, 305 West Bay St., Cor. Jefferson,

Agents for Revere Rubber Co., Chicago
Belting Co. and Ohio Valley Pulley Co.

SAVANNAH, GA.

Improved Corliss Engines



Ice Making Plants.

We also sell

Ammonia Fittings
and Supplies,
Boilers, Heaters,
Condensers, and Pumps.

THE VILTER MFG. CO., 832 Clinton St.
Milwaukee, Wis.

Steel Storage TANKS.

HAMMOND IRON WORKS,

WARREN, PA.

Correspondence Solicited.

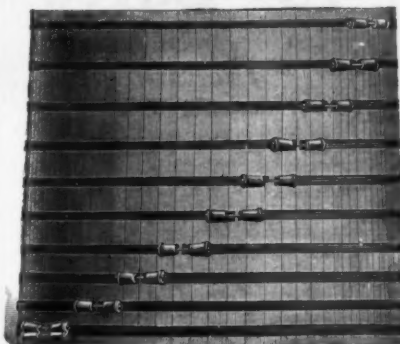
COLUMBIA SUPPLY CO.
COLUMBIA, S. C.

DEALERS IN—

Machinery Supplies.
Everything for Saw Mills.
Rubber, Leather and Gandy Belt.
Pipe, Valves and Fittings.
Estimates Given on Specifications.

"Absolutely safe and reliable. Ask your friends."

LOUISIANA RED GULF CYPRESS



is a product of the swamp lands
and is especially adapted to use in
water tanks. We use this material
in building the

Caldwell Water Tanks.

It does not leak, warp, twist or
shrink nor do sudden changes of
temperature affect it. Hoops of
guaranteed strength prevent burst-
ing. These tanks last a lifetime
and require no repairs.

May we send our catalogue and
price list?

W. E. CALDWELL CO., LOUISVILLE, KY.

Cooling Towers

Furnished with Fans or Chimneys,
(NATURAL DRAFT.)

GEORGE J. STOCKER, Patentee and
Manufacturer.

2883 S. Kingshighway Boulevard, ST. LOUIS, MO.

Write for Catalogue, (Illustrated.)

Southern Representatives:

LUDWIG & CO., Engineers, 518 Empire Bldg., ATLANTA, GA.

THE SOUTHERN PIPE COVERING CO.

JOHN A. SELPH, Prop.

Successors to THE SOUTHERN ASBESTOS MFG. CO., RICHMOND, VA.

Manufacturers of Standard Asbestos-Magnesia Steam Pipe and Boiler Covering
and Cements. The only manufacturers of these materials in the South.

THE PECK-HAMMOND CO.

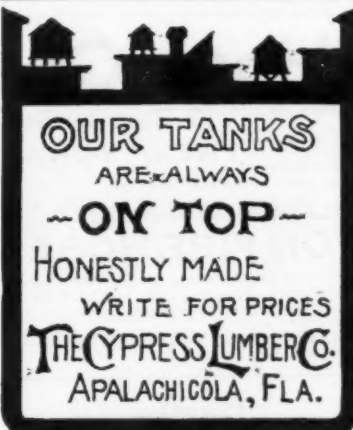
MANUFACTURERS OF

Highest Grade Heating, Ventilating and Sanitary Apparatus

FULLY GUARANTEED when installed by us

FOR INFORMATION WRITE **THE PECK-HAMMOND CO.**

CINCINNATI, OHIO



OUR TANKS

ARE ALWAYS

ON TOP

HONESTLY MADE

WRITE FOR PRICES

THE CYPRESS LUMBER CO.
APALACHICOLA, FLA.

Corrugated Galvanized Steel

TANKS

FOR FUEL OIL, PETROLEUM OIL WELLS,
FACTORIES, ETC.

Also CISTERNS for under or overground use.
Our work guaranteed. Write

HARRY BROS. CO., 240 Pacific Ave., DALLAS, TEX.
331 FANNIN ST., BEAUMONT, TEX.



TUPELO WATER TANKS

Equal to cypress and 20% cheaper.

For delivered prices write

Tupelo Tank Co., 27 Madison Street

Mobile, Ala.



CYPRESS WATER TANKS.

Best in the world. Send for catalogue.

Write for delivered prices.

H. F. LEWIS & CO., Ltd.

316 Baronde St. NEW ORLEANS, LA.

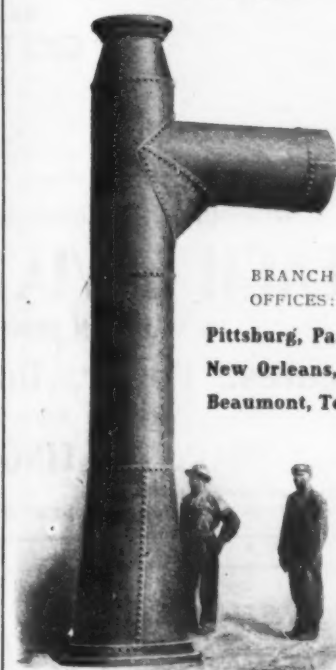


**Cabinet and
Builders'
Hardware.**

Specialties in Iron.
Wrightsville Hardware Co.
Wrightsville, Pa.

The Petroleum Iron Works Co.

WASHINGTON, PA.



BRANCH
OFFICES:

Pittsburg, Pa.

New Orleans, La.

Beaumont, Tex.

ALL CLASSES OF

**STEEL PLATE
CONSTRUCTION.**

DID YOU EVER TRY

MEIER'S BELTING?How do you know it is not
THE BEST?

Made of Oak-Tan Leather.

TRY IT.**JOSEPH MEIER'S SONS,**Factory: Newark, N. J. 49 Day Street, N. Y.
ESTABLISHED 1883.**Use Baltimore Belting****A Belt
of Quality.**Made by expert belt-makers from the center stock of highest grade of slow tanned oak bark leather.
Thoroughly stretched and warranted for durability and economical service.
Write us about your wants.**BALTIMORE BELTING CO.**

6 E. Lombard St., BALTIMORE, MD.

Subscribe to the Manufacturers' Record.
Price \$4 a year, or six months for \$2.**75% Saved**In other words, the cost of
lacing belts by the**Jackson****Belt-Lacing Machine**

using coil wire lacing is one-quarter that of the old methods. Lacing lasts three times as long, makes a flexible joint lacing that is even with the surface on both sides and passes over the smallest pulley without noise, slipping or friction.

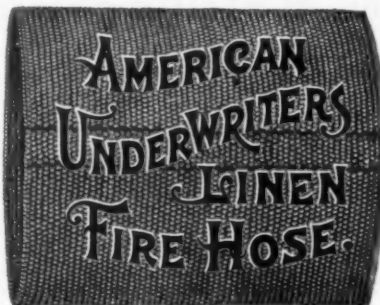
Send for Booklet.

**Diamond Drill
and Machine Co.**
BIRDSBORO, PA.

AGENCIES:

The Jackson Belt-Lacing Machine Agency, Toronto, Canada.
Selig, Sonnenthal & Co., 85 Queen Victoria St., London, Eng.
New York Export and Import Co., New York City.
Wihl, Sonnenthal & Co., Malmö, Sweden.**STITCHED COTTON****BELTING**

"SPHINX" BRAND.

Rossendale-Reddaway Belting & Hose Co.
NEWARK, N. J.**Hose for Fire Protection.****LINEN HOSE** unlined, for inside use in mills.
RUBBER & COTTON HOSE for outside use.

Our Hose is accepted by the Underwriters, is made of High Grade Material throughout, and is always reliable in time of need.

Write for our FIRE HOSE Catalogue.

MANUFACTURED BY

Boston Belting Co.,**MECHANICAL RUBBER GOODS**

of Every Description.

James Bennett Forayth,

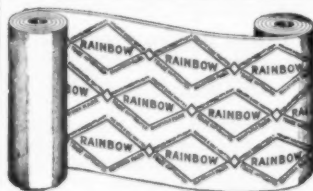
Mfg. Agt. & Gen. Mgr.

BOSTON.

NEW YORK.

ATLANTA.

NEW ORLEANS.

**Rainbow at night****Is an engineer's delight.****An imitation in the morning****Is an engineer's warning.****Rainbow Packing is unrivaled, unequaled and matchless.****"Can't blow it out."****Get the Genuine.**

Manufactured Exclusively by

PEERLESS RUBBER MFG. CO.

16 Warren St., New York.

16-24 Woodward Ave., Detroit, Mich. Corner Common and Tchoupitoulas Sts., New Orleans, La.
210-214 N. Third St., St. Louis, Mo. 17-23 Beale St. and 18-24 Main St., San Francisco, Cal. 1221-1223 Union Ave., Kansas City, Mo. 709-711 Austin Ave., Waco, Tex. Cor. Ninth and Cary Sts., Richmond, Va. 1212 Farnam St., Omaha, Neb. 202-210 S. Water St., Chicago, Ill. 634 Smithfield St., Pittsburg, Pa. 1601 to 1615 17th St., Denver, Col. 220 S. Fifth St., Philadelphia, Pa. 20th St. and Railroad Ave., Birmingham, Ala. 38 S. Meridian St., Indianapolis, Ind. 51-55 N. College St., Charlotte, N. C.**Voorhees Rubber Mfg. Co.**

JERSEY CITY, N. J.

Rubber Belting, Hose,**Packings, Valves, Mats, Mattings, Etc.****Rubber Lined Cotton Mill and Fire Hose.**

We manufacture only the highest grades.

**"Goods Bearing Our Brands Are Always
Guaranteed."****Eureka Fire Hose Co.****GOLD MEDAL**
Awarded at
Pan American Exposition
1901.**13 Barclay St.
NEW YORK**

ORIGINAL MANUFACTURERS OF

**SEAMLESS RUBBER LINED
COTTON FIRE HOSE**

Also the Celebrated Brands of Eureka Mill Hose, Eureka Underwriters' Linen, Eureka Garden Hose, Eureka U. S. Brand Linen Hose, Plain and Rubber Linen, Trojan Mill Hose, Gem Garden Hose.

Agencies at Charlotte, Greensboro, N. C., Atlanta, Ga., Memphis, Tenn., and New Orleans, La.

Driving, Conveying, Elevating**EACH LEVIATHAN BELT****IS MADE ON HONOR, AND STANDS FOR****Greatest Power, Durability, Economy****Wherever Run—Wet or Dry.****MAIN BELTING COMPANY,**1219-1241 Carpenter Street, Philadelphia.
BOSTON

NEW YORK

35-37 Market Street, Chicago.
BUFFALO**Alexander
Brothers**

Manufacturers of

**Oak Leather
Belting****410 and 412 N. Third Street
Philadelphia****COTTON-BLOOM****Sewed Canvas Belting**

FOR IN OR OUTDOOR USE.

Equals Leather Belt. Half The Price.

Made by an entirely New and Original Process. Will not stretch any more than leather and is equally as strong and durable; a trial will convince you.

SAMPLES AND SPECIAL DISCOUNTS ON APPLICATION.

ENDLESS BELTS A Specialty.**WHITEHURST BELTING CO.,****BALTIMORE, MD.****"OUR NAME AND BRAND A GUARANTEE OF QUALITY."****High Grade Rubber Goods,****Belting, Packing,
Tubing, Springs, Valves,
Gaskets,
Mats, and Matting.
Rubber Lined
Linen and Cotton Hose.**

Send for Catalogue, Samples and Prices.

N. J. CAR SPRING and RUBBER CO.MAIN OFFICE AND WORKS,
JERSEY CITY, N. J.

AGENTS:—Lee Bros., Memphis, Tenn.; Nashville Machine Works, Nashville, Tenn.; Moore & Handley Hardware Co., Birmingham, Ala.; Southern Brass & Iron Co., Knoxville, Tenn.; Stratton & Bragg Co., Petersburg, Va.; Southern Supply Co., Norfolk, Va.; N. S. Fulford Hardware Co., Washington, N. C.; Lombard Iron Works & Supply Co., Augusta, Ga.; John G. Christopher, Jacksonville, Fla.; Peden Iron & Steel Co., Houston, Tex.; F. F. Collins Mfg. Co., San Antonio, Tex.; Young & Heintz, Dallas, Tex.; Richard Mellett, Mobile, Ala.; C. A. Turner, Pittsburg, Pa.; Miller Supply Co., Huntington, W. Va.; Carolina Supply Co., Greenville, S. C.; F. W. Axtell, Ft. Worth, Tex.; Little Rock Tent & Awning Co., Little Rock, Ark.; Hyman Supply Co., New Bern, N. C.



**For Strength,
Traction
Power
and
Durability**
It is without an equal.

The "Original Gandy" STITCHED COTTON DUCK BELTING.

Specially adapted to places where belts are exposed to water, heat, steam, oils, atmospheric changes, etc. Costs about one-half as much as the best leather belt on the market—has greater lasting qualities and will outwear any other make of belt. It is used with the greatest satisfaction as a main driver, conveyor or carrier. Give the Gandy Belt a trial and be convinced of its high merit. Beware of imitations. The real article stamped every ten feet, "Original Gandy Belt."

Sole Manufacturers,
THE GANDY BELTING CO., Baltimore, Md.

GOLDEN'S FOUNDRY & MACHINE CO. COLUMBUS, GEORGIA.

Manufacturers of

Hangers, Shafting, Machine Moulded Pulleys.

Send for Price List and Discount Sheet.

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

PULLEYS, Hangers, Shafting, Couplings, Collars, Etc. / FRICTION CLUTCHES. THE MINSTER MACHINE CO
MINSTER, OHIO.

Purchasers of

Cold-Punched Nuts

Do Not Be Deceived by a

"Hot-Pressed Nut"

Chamfered and Trimmed Cold.

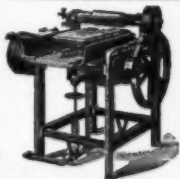
HOOPE & TOWNSEND CO.
PHILADELPHIA, PA.



**THIS DRAY WE RECOMMEND FOR MERCHANTS,
COTTON MILLS OR WAREHOUSES.**

MADE OF BEST SEASONED HICKORY AND OAK. PRICE LOW.
Write for Price List and Catalogue.

W. P. HORNER WAGON MANUFACTURING CO.
DANVILLE, VA.



Sinclair Ironers are the First and Best **Sinclair Washers** are the Latest and Best.

S. H. SINCLAIR CO.

F. A. Walker, Pres. Manufacturer of **LAUNDRY MACHINERY**,
Henry H. Horr, Treas. 8 and 10 S. Canal St., CHICAGO, ILL.
W. G. Saunders, Secy

Write for Catalogue "R." Estimates cheerfully furnished.

Do You Want to Buy

"The Columbia" Modern Laundry Machinery

Is the Cheapest and Best.

Latest. "Up-To-Date." "Prices Right."

WILSON LAUNDRY MACHINERY CO., Send for Catalog R. Columbia, Pa.

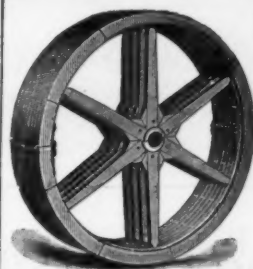
SHARP'S Latest Styles Ironing & Washing Machinery

Complete Plants Supplied.

ADAMS LAUNDRY MACHINERY CO., 1931-1937 6th Ave., Troy, N. Y.

LAUNDRY MACHINERY, HAND OR POWER.

For Hotels, Dyehouses, Commercial Laundries and Domestic Use.
Write for Prices. **A. L. DAWSON & CO.,** 27-31 W. Washington St., Chicago.



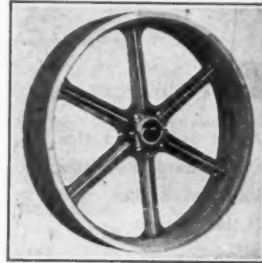
**GILBERT
WOOD
SPLIT
PULLEYS**

SAGINAW MANUFACTURING CO.

Saginaw, Michigan, U. S. A.

New York Branch, 44 Dey Street.
Chicago Branch, 35 S. Canal Street.

Sales Agencies in all the Principal Cities.
Cable Address: ENGRAVE, A B & Lieber's Codes.



**A HAPPY
COMBINATION**

of the best features of the
all steel and all wood pul-
leys make the new

**Steel Center Wood Rim
Pulley.**

Send for Prices.

Oneida Steel Pulley Co.
ONEIDA, N. Y.



OILLESS BEARINGS.

Metalized Loose Pulley
Bushes require no oil or
other lubricant, either at
the start or occasionally
afterwards. Will run per-
fectly dry for years.

North American Metalizing Co.
West Ave. Cor. W. 3rd St.
Long Island City, N. Y.
Send for Loose Pulley Cir-
cular No. 8.

AMERICAN TYPE FOUNDERS CO.

ORIGINATORS OF

TYPE STYLES

ELECTROTYPES

BEST EQUIPPED PLANT IN THE SOUTH

NICKELTYPES

FOR HALF TONES. SOMETHING NEW. BIG
SAVING IN THE PRESSWORK. MAK-
ING READY MADE EASY

QUADS

WRITE FOR SPECIAL PRICES AND DISCOUNTS
COR. WATER AND FREDERICK STS.
BALTIMORE, MD.

CHAS. S. CONNER, MANAGER.



THE AMERICAN



**All-Wrought Steel
Split Pulley.**

A HANDSOME DESIGN.
SUBSTANTIAL CONSTRUCTION.
A PERFECT PULLEY.

SEND FOR CATALOG.

THE AMERICAN PULLEY CO.

29th and Bristol Streets,
PHILADELPHIA, PA.



W. E. Caldwell Co.

LOUISVILLE, KY.

Brook and Brandeis Streets.

ESTABLISHED 1887.

The largest Transmission Machinery Works in
the South.

MANUFACTURERS OF

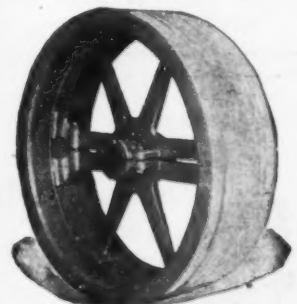
Cast Iron Pulleys,
Shafting, Hangers,
Couplings, Pillow Blocks, etc.

Send for 100-page illustrated catalogue and
discounts.

THE CHASE

Wood Rim Pulley

with iron hubs and arms,



is adapted to any work which
is required of a pulley.

CHASE PULLEY CO.

Providence, R. I.

Send for illustrated booklet.

T. B. WOOD'S SONS,

Manufacturers of

Shafting, Pulleys, Hangers,
Rope Sheaves, etc.

CHAMBERSBURG, PA.

CUMBERLAND STEEL COMPANY
TURNED AND GROUND CUMBERLAND, MD.
HIGHLY POLISHED SHAFTING. U.S.A.

SEND FOR PRICE LIST "L."

The Diamond State Steel Co.



DIAMOND POINT SPIKE.

SPECIALTIES.

Diamond Point Spikes (Patented). Best for soft wood ties.
Crescent Point Spikes (Patented). Best for hard wood ties.
Diamond Double Neck and P. R. R. Standard Spikes, with rolled points, for either hard or soft ties.
Diamond Tie Plates (Patented).
Diamond Rail Joint (Patented).
Churchill Joint (Patented).
Diamond Grip Thread Track Bolts.
Track Bolts with cut and cold rolled thread.



CRESCENT POINT SPIKE.

ALSO MANUFACTURERS OF

Pressed Point Railroad and Boat Spikes of all sizes, Plain and Angle Joints of iron, soft and high carbon Open Hearth steel, Merchant Bar Iron and Steel, Angles and Channels, Horse and Mule Shoes, Rivets, Machine Bolts, Etc.

Main Office and Works, Wilmington, Del.

Philadelphia Office - No. 503 Real Estate Trust Bldg.

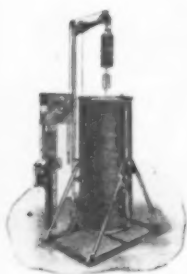
New York Office - No. 29 Broadway.

Chicago Office - No. 934 Monadnock Block.

OLD DOMINION HORSE SHOES.

Cut Nails of Superior Quality of Iron and Steel.
Bolts, Refined Bar Iron.

GRANITE CRUSHED TO ORDER FOR CONCRETE PURPOSES.
OLD DOMINION IRON & NAIL WORKS CO.
RICHMOND, VA.



WE MAKE EIGHT TYPES OF
Cylindrical Electric Blue
Print Machines.

WRITE FOR CATALOGUE.

PITTSBURG BLUE PRINT CO.

1505 P Park Bldg.,

PITTSBURG, PA.

For any information about

CAROUSELS and MERRY-GO-ROUNDS

as to Prices, Sizes and Terms, Address

P. C. McINTIRE & CO., Charlotte, N. C.

Agents for following States: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Kentucky and Tennessee.

SUPPLIED \$1 MONTHLY

Hawkins' Series

are the most complete library of practical books published for Engineers, Firemen, Electricians and Machinists.

Treating on Steam Engineering in all its branches, including questions and answers; Electrical Engineering and Self-Help Mechanical Drawing.

Complete catalog giving special terms and prices sent free upon request.

for Engineers.

THEO. AUDEL & CO.
Educational Books
63 Fifth Avenue, New York City

THE PITTSBURGH REDUCTION CO. PITTSBURGH, PA.

ALUMINUM

Electric Conductors, Ingots, Bars, Plates,
Castings, Tubes, Sheets, Etc.

Southern Office, Bond Bldg., WASHINGTON, D. C.

FOR INFORMATION ABOUT

U. S. MAIL CHUTES,

WHICH ARE

A NECESSITY IN OFFICE BUILDINGS AND HOTELS.

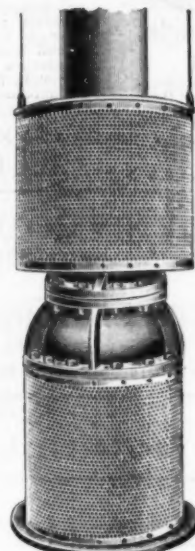
Write to the sole makers,

THE CUTLER MFG. CO., Rochester, N. Y.

PATENTED.

AUTHORIZED.

The Continuous Service Foot Valve



Pat. May, 1899.

Is provided with two sets of cylindrical side screens, one within the other, and so arranged that the outer one can be raised to or above the surface of the water to have refuse removed therefrom. The inner screen is cleaned by the outer one scraping down over it. Do you want to hear more about this valve? Write for Circular.

THE NEWMAN MFG. CO.,
26 Cortlandt St., New York.

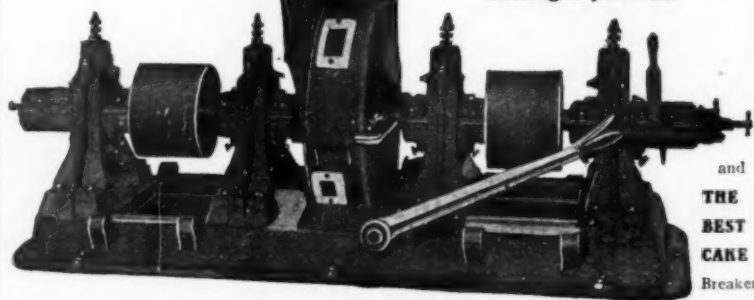
FOOS SCIENTIFIC ATTRITION MILL.

Makes the Finest EXPORT MEAL.

The result of twenty years' practical working and careful study of the needs of the business.

Special sizes for the cotton oil trade of extra heavy design. Ball bearings, safety springs, quick release, least trouble to open, easiest to change plates. Plates trammed in working position. The only mill with renewable feeding throat.

New Special Oil Cake Machinery
Catalogue just out.



THE FOOS MFG. CO., Springfield, O.



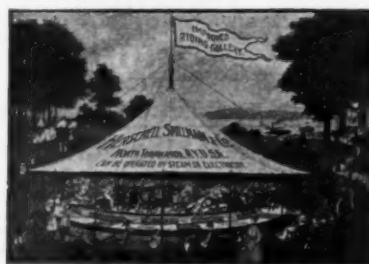
BURR STONES

For all purposes.
Manufactured by us.

Also ROLLER MILLS, SMUT MACHINES and
GENERAL MILL MACHINERY.

Established 1847.

B. F. STARR & CO., Baltimore, Md.



YOU WANT
THAT TONAWANDA
MERRY-GO-ROUND
BIGGEST MONEY MAKER
ON EARTH.

HERSCHELL, SPILLMAN & CO.
102-106 SWEENEY STREET,
North Tonawanda, NEW YORK.



ALLIS ROLLER MILL.

ALLIS-CHALMERS Co.

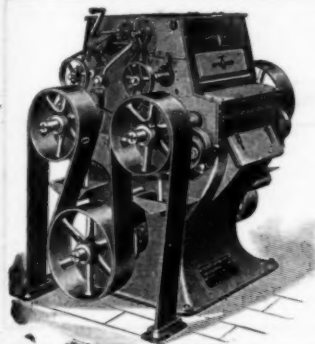
General Office **CHICAGO**, New York Life Bldg.

BUILDERS OF

Flour Mills, Corn and Cereal Mills.

Universal Bolters—Reliance Purifiers
Reliance Sifters—Allis Roller Mills

WRITE FOR DESCRIPTIVE CATALOGUE AND PRICES.



FLOUR MILL MACHINERY.

The kind that stands high in the estimation of millers everywhere. Its 51 years record is a good one. We build complete Flour, Corn and Cereal Mills of any desired capacity. We make Mill and Elevator Machinery and Supplies of all kinds, Portable Buhr Stone Mills, Roller, Corn and Feed Mills. Bolting Cloths made up to order.

HIGH-GRADE SHAFTING, POWER CONNECTIONS, GEARING and PRACTICAL ROPE DRIVES a Specialty.

CORRESPONDENCE SOLICITED.

NORDYKE & MARMON CO., 1133 West Morris St.
INDIANAPOLIS, IND., U. S. A.



*Power Transmitting, Elevating, Conveying, Flour, Corn, Rye,
Buckwheat, Rice and Special Machinery, Turbine
Water Wheels and Mill Supplies of
Every Description.*



THE WOLF CO.

Export and Atlantic Coast Department,

Main Office and Works, Chambersburg, Pa.

No. 804 Penn'a Bldg., PHILADELPHIA, PA.

MONARCH ATTRITION GRINDING MILL.

Specially Adapted to
Grinding
LINSEED and COTTON
SEED CAKE.

Shipped Subject
TO
15 Days' Trial.



Not necessary to remove belts to open mill. Contains Quick Release, Movable Base, Chain Oiler, Phosphor Bronze Bearings, Perfect Feed and our Patent Ball Bearing at end of Spindles.
GUARANTEED to do as much work, both as to Quantity and Quality, as any mill built, and the manner in which it is constructed makes it the BEST MILL offered to the trade. Write for prices.

SPROUT, WALDRON & CO.,

Builders of Flour, Meal and Feed Mills. P. O. Box 310. MUNCY, PENNA.

The COGSWELL MILL,

Over
2000
in operation.

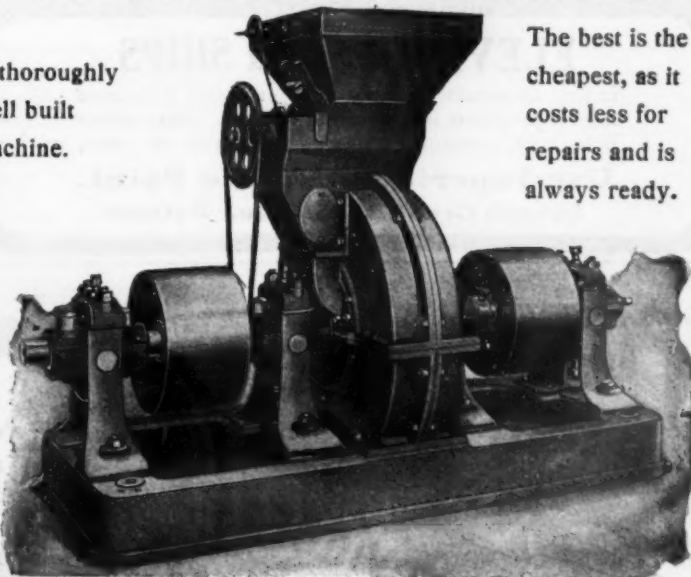
THE ORIGINAL AND STANDARD FOR GRINDING

Cotton Seed, Cotton Seed Hull, Oil Cake, Corn, Corn and Cob together, Corn and Oats together, Feed of all kinds, Resin, Spices, Alum, Borax, Cocoanut Shell, Drugs, Sugar, Starch Material (Carbon), etc., etc.

Capacity 3000 to 5000 pounds of feed meal (through No. 16 wire cloth) per hour.

A thoroughly
well built
machine.

The best is the
cheapest, as it
costs less for
repairs and is
always ready.



THE A. & F. BROWN CO.

Successors to
M. C. COGSWELL

25 Day St., NEW YORK.

CAREY'S MAGNESIA STEAM PIPE AND BOILER COVERINGS

Are the Most Efficient, Durable and Economical.

The Philip Carey Manufacturing Co., } General Offices—
LOCKLAND, OHIO.

FACTORIES—Lockland, O., Baldwinville, Mass., Plymouth Mfr., Pa.

BRANCHES—New York, Philadelphia, Boston, Pittsburg, Cleveland, Cincinnati, Charlotte, Atlanta.

See our Roofing Advertisement on Page 47.

American Sheet Steel Company

Battery Park Building New York

Manufacturers of all varieties of

Iron and Steel Sheets

Black and Galvanized, Plain and Painted
Flat, Corrugated and "V" Crimped

Apollo Best Bloom Galvanized Sheets
Wellsville Polished Steel Sheets

W. Dewees Wood Company's Planished Iron
W. Dewees Wood Company's Refined Iron



SLEEP SOUND.

Our Watchman's Time Detector will keep your night watchman alert and always on the move. They are inexpensive and thoroughly reliable.

We sell everything electrical. Write for prices.



THE WESCO SUPPLY CO., ST. LOUIS, MO.

GALENA-SIGNAL OIL CO. FRANKLIN, PA.

Successors to Galena Oil Company and Signal Oil Company, sole manufacturers of the celebrated Galena Coach, Engine and Car Oils and Sibley's Perfection Valve and Signal Oils.

Charles Miller,

PRESIDENT



Black Diamond Prepared Roofing

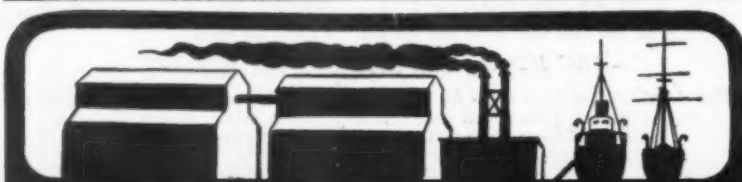
In Two and Three Ply.

We make nine-tenths of all the Prepared Roofing sold in the United States. A better testimonial?

BARRETT MFG. CO.,

Philadelphia, Pa.

St. Louis, Mo. New Orleans, La.

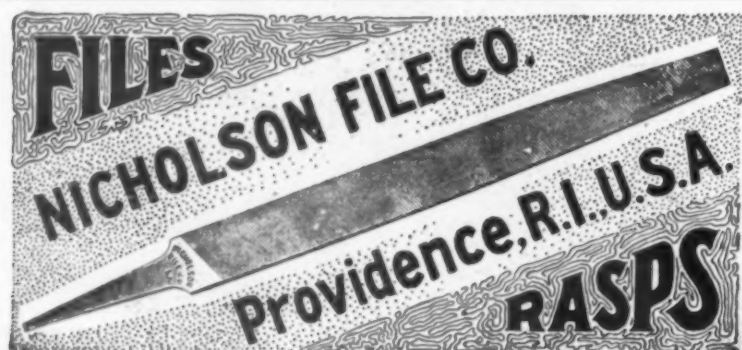


ELEVATORS and SHIPS

in fact, all metallic surfaces, for their proper protection need a paint that is tough and durable; that resists heat, cold, moisture, fumes; that retains its color.

Use Superior Graphite Paint.

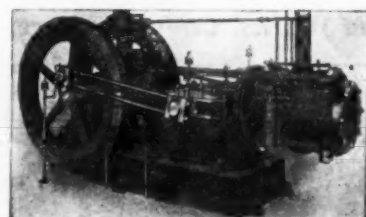
Detroit Graphite Mfg. Co., Detroit.



AIR COMPRESSORS

FOR USE
IN
CONNECTION
WITH THE

POHLE
AIR LIFT
SYSTEM



EITHER
DRIVEN BY
STEAM OR BELT
ACCORDING
TO
DESIRE
AND
ESPECIALLY
ADAPTED
FOR
WELL PUMPING

STEAM DRIVEN

INGERSOLL-SERGEANT

Drill Co.

CLEVELAND, OHIO.

BOSTON, MASS.

26 CORTLANDT ST., N. Y.



MANUFACTURERS' RECORD.

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XLIV. No. 47.
WEEKLY.

BALTIMORE, NOVEMBER 19, 1903.

\$4.00 A YEAR.
SINGLE COPIES, 10 CENTS.

Manufacturers' Record.

PUBLISHED EVERY THURSDAY BY THE
Manufacturers' Record Publishing Co.

RICHARD H. EDMONDS, President.
THOMAS P. GRASTY, Vice-President.
FRANK GOULD, Secretary-Treasurer.

OFFICE: MANUFACTURERS' RECORD BUILDING
BALTIMORE.

RICHARD H. EDMONDS,
Editor and General Manager.

THOMAS P. GRASTY,
General Staff Correspondent.

SUBSCRIPTION, \$4.00 a Year.
To FOREIGN COUNTRIES, . . . 26s. 6d. a Year.

BALTIMORE, NOVEMBER 19, 1903.

COPY FOR ADVERTISEMENTS.

Advertising copy (changes or new advertisements) should reach us Saturday Morning to insure insertion in the issue of the following week.

For the first issue in the month we should receive copy by Friday Morning of the week preceding.

THE DAILY BULLETIN of the Manufacturers' Record is published every business day in the year for the purpose of aiding manufacturers and business men generally who need to keep in daily touch with the new industrial, railroad and financial developments of the South and Southwest. Supplementing and in connection with the work of the Manufacturers' Record, it is an invaluable aid to all who are seeking business in the South and Southwest, the most wonderfully endowed section of America, where industrial, railroad and financial activity is creating an ever-widening market for machinery of all kinds, railroad equipment and building supplies, and for financial operations, etc., and where the knowledge and skill of the engineer and expert will find their largest field of operation.

The Daily Bulletin is intended simply to cover every day the work of the "Construction Department" of the Manufacturers' Record in reporting every new mining, manufacturing, railroad and financial enterprise organized in the South and Southwest, and it is not intended to be a general daily newspaper. To all who want to be advised every day of every new enterprise organized in that section it is invaluable.

A CHANCE FOR PRACTICAL SOUTHERN STATESMANSHIP.

In the present situation in Congress is an opportunity almost unparalleled for a practical display of statesmanship to the far-reaching benefit of the South. During the next few months the attention of Congress will be engaged with such great matters as the Panama canal, the subsidizing of the American merchant marine, reciprocity with Cuba and perhaps with other countries, the establishment of a national forest reservation in the Southern Appalachians and forestry operations in other parts of the country, the opening of a waterway between the Chesapeake and Beaufort inlet, the improvement of the Ohio river and the improvement of the Mississippi, to-

gether with a betterment of the harbor conditions at Baltimore, Savannah and other coast and interior ports. In some of these measures the South has a special interest, some of them are of vital moment to other parts of the country, and some of them, while of special moment to a few interests more or less closely allied, have the support of men of all parts of the country, because they are convinced that they will promote the general welfare.

With fresh memory of a certain river-and-harbor bill of two or three years ago, with its most liberal provisions for Southern localities dangled as a tempting bait until a sufficient number of votes had been cast for a measure particularly desired by the administration and then "talked to death," as the bluff was designated, Southern men in Congress should, in co-operation with men of other parts of the country, see to it that the measures which, affecting the South for good directly, will indirectly advantage the whole country, are assured before they deliver their votes for measures which will benefit the South only indirectly. For instance, it is pretty generally understood that the plan of the inland waterway, which, though lying in the South, would be of national import, is not to be favored by legislation at present. The legislative trifling over the project of an Appalachian forest reserve, in spite of the favor shown it by the administration, is indicative of a disinclination to make that necessity an accomplished fact. Both of these plans, as well as others, may, however, under skillful leadership and compact co-operation, become effective at this session of Congress. The center of action should be found in a solid front presented by those favoring the improvement of the Mississippi, the Ohio and other Western streams and the Southern harbors, in connection with those working for a ship-subsidy bill, before following the lead into a vote for Cuban reciprocity or for the Panama deal. It is unnecessary to instruct congressmen in the method of accomplishing such an end. The point to be emphasized is that the representatives of the measures named, all of which are of deep interest to the South and to the whole country, regardless of political theories or party affiliations of the past or the present, should refrain from giving their votes to other measures until after they have received the necessary votes and the executive signature for these measures. The South and West have a right to demand the most liberal river and harbor improvements, the East is equally as much interested, and the whole country should be, in government aid to our mercantile marine. If these interests will unite they can receive, not empty promises, but actual results in just appropriations by the national government.

BREADSTUFFS AT THE GULF.

During the ten months ended with October the value of breadstuff exports from this country was \$161,385,745, an increase over the same period in 1902 of \$9,011,188. Decreases are reported at eight of the sixteen principal ports of the country on the Atlantic and Pacific coasts and on the Lakes. There is considerable significance in a comparison of certain Atlantic ports with three Gulf ports. The figures for ten months in 1902 and 1903 at these Atlantic ports are as follows:

Ports.	1902.	1903.
Baltimore.....	\$18,239,291	\$21,589,090
Boston.....	9,554,860	7,718,191
Newport News.....	10,780,704	6,086,256
New York.....	31,320,171	34,112,881
Philadelphia.....	15,437,968	14,603,330
Total.....	\$85,332,994	\$84,109,748

The figures for the three Gulf ports are as follows:

Ports.	1902.	1903.
Galveston.....	\$7,313,786	\$16,088,359
Mobile.....	1,108,916	1,162,797
New Orleans.....	11,728,388	18,578,566
Total.....	\$20,151,090	\$35,829,722

At the five Atlantic ports there was a decrease of \$1,223,246. The increase of \$2,792,710 at New York was but slightly greater than the combined decrease of \$2,671,307 at Boston and Philadelphia, and the increase of \$3,349,799 at Baltimore was more than \$1,350,000 less than the decrease of \$4,694,448 at Newport News.

In the meantime there was an increase at the three Gulf ports of \$15,678,632, the greatest being \$8,774,573, or 119 per cent., at Galveston. The actual increase there was more than three times the increase at New York, and the increase at New Orleans was more than twice the New York increase. It will be noted, too, that the combined exports at Galveston and New Orleans were greater than the exports at New York by more than \$500,000, that those at Boston in 1903 approached those at Galveston in 1902, and that New Orleans exports have come within \$3,000,000 of those of Baltimore.

Advertisements of Southern localities offering special advantages for the location of manufacturing enterprises will be found on pages 56 and 57.

THE NATIONAL EIGHT-HOUR BILL AGAIN.

On the fourth day of the extraordinary session of Congress, called for the specific purpose of acting upon the reciprocity convention with Cuba, Senator Louis E. McComas of Maryland introduced again the extraordinary eight-hour bill, which, if it ever passes, will have the ultimate effect of nullifying all commercial conventions and all other measures intended to further the material development of the country.

The eight-hour bill has been before Congress a number of times, passing on branch, only to be defeated in another, and resisted with ever-increasing power by the substantial forces of

the country. They recognize that the measure is a menace to American manhood and to American institutions. It is nothing more or less than the attempt to use national legislation as a powerful club to advance an agitation favored by a small but compactly-organized minority of American wage-earners, who are upon record as being opposed to freedom of speech, to the right of a representative of the people in the Senate or in the House of Representatives to vote according to his best judgment without being subjected to puerile threats, and to the use of the injunction by the courts for the protection of property and the enforcement of law. This element would deprive the individual American of the right to control his own actions within constitutional and legal limits.

The opposition to the measure recognizes that the national government, just as any other employer, may have the right to contract with its employees as to the hours in which they shall labor, though it should avoid exercising that right to the injury of any individual; that the individual employer may determine how many hours his employees shall work upon a basis of free contract; that the individual wage-earner has the right to decide to work as many or as few hours as he may please, but has no right to prevent another from accepting terms not satisfactory to himself, and that the national government may, by no stretch of the Constitution, have the right under any circumstances, in time of peace, to tell an employer that his establishment, or any part of it, shall be operated only for a fixed number of hours a day, or the wage-earner that he shall not work as long as it suits him.

It is amazing that Senator McComas should spend the few months left him in public life in antagonism to the best interests of the wage-earners and the employers, to say nothing of the vast majority of the people of the country.

A PURPOSE OF THE SOUTHERN EDUCATION SCHEME REVEALED.

The New York Mail and Express unwittingly lets one of the cats out of the bag of the Southern Education Scheme and at the same time illustrates the danger of dependence upon the "statistics" of that Scheme when, referring to "recent inquiries of Walter H. Page of this city, Rev. Edgar Gardner Murphy of Alabama and others into the matter of Southern illiteracy, and particularly white Southern illiteracy," it says:

Great sections which are contributing heavily to the constituent population are not only far below the average of civilized countries in point of public education, but are not advancing. Mr. Walter H. Page, himself a Southern man, and one of the foremost of our students of Southern social conditions, has shown that the proportion of illiterate white voters in the ten Southern States east of the Mississippi is as great in 1903 as it was in 1850. The neglected poor white has, in Mr. Page's view, actually ret-

regressed. Yet his voting influence, owing to the elimination of the colored electorate without any reduction of the States' representation in Congress on account of it, is actually much greater than that of the educated voter of the North and West.

Whatever may be happening elsewhere, the Mail and Express is way off the track if it believes the ten Southern States are not advancing in what it calls "public education." For during the past twenty years the white population of ten years of age and over in those States has increased 48 per cent. and the illiteracy of that population has decreased 16 per cent., while in the rest of the country, with an increase of that population of 61 per cent., its illiteracy has increased 20 per cent., the number of illiterates in the ten Southern States decreased by 192,548 and in the rest of the country increased by 383,073.

It is quite easy to assert that the proportion of illiterate white voters in the ten Southern States east of the Mississippi is as great in 1903 as in 1850. But it cannot be proved. There is no basis in published official figures for an absolute comparison of the illiteracy of white voters in those States in 1850 and 1903. The nearest approach to such a basis are the figures of adults in 1850 over twenty years of age who could not read and write and the figures of white males twenty-one years and over in 1900 who could not write, though some of them could read. It is thus seen that the definitions of illiteracy, from the census standpoint, were different in the two years, and that one more year was counted in 1850 than in 1900. Again, it is questionable whether the census enumerators had a clear idea of what they would regard as illiteracy. For Vol. II of the census of 1900, referring to persons ten years old and over, says: "The designation 'illiterate' comprehends all persons who can neither read nor write, or who can read but cannot write," while a glossary in the abstract of the census defines illiterates as "persons at least ten years of age unable to both read and write any language." With these distinctions in mind it is possible to make a rough comparison of the two years. This shows that with the adult white male population increasing 150 per cent. in fifty years, its illiteracy was checked, and increased but 114 per cent. There is another point to be considered. Figures of the census of 1900 show that of the whites classed as illiterates, 20.2 per cent. could read. It is safe to estimate, therefore, that the number of illiterates among the voters corresponding to the illiterates of 1850 was 20 per cent. less than the figures for those classed as illiterates in 1900, and that, therefore, with this voting population increasing in fifty years by 150 per cent., its illiteracy increased but 70 per cent. Mr. Walter H. Page's view of that point is, therefore, erroneous, and, in fact, we recall nothing which he or the other individual mentioned has produced placing him in the position of an authority as to Southern social conditions.

There was undoubtedly a marked advance in this illiteracy between 1860 and 1880. The reason is plainly written in the slight increase in true wealth of those ten States during that period compared with the advance in the whole country. But figures of general white illiteracy for the past twenty years, with their wonderful revelation of achievement against tremendous odds, including the task of greatly reducing negro illiteracy, prove that these ten

States will give a good account of themselves in that particular in the near future.

In banking upon the fallacious statistics of the Southern Education Scheme, however, the New York Mail and Express has unwittingly but artistically uncovered the purpose of that Scheme's dwelling so insistently upon the illiteracy of white voters in its intimacy of specialization in half information with the National Bureau of Education and the Census Bureau. For the Mail and Express, by alluding in the last sentence quoted to "reduction of the States' representation in Congress," harks back to the compromise in the original Constitution of the United States, in which germinated so many ills for this country that were intensified by the revolutionary amendments following the war and which malignity would keep alive forever, using to that end even innocent-minded Southerners.

WHAT WE OWE TO COTTON.

From the center of the recent agitation to the detriment of cotton-growers of the country comes a clear statement likely to set some folks thinking. New York was the center of the bear movement in cotton in August and September, supported at one end by the Secretary of Agriculture and at the other by representatives of New England cotton mills. The elections being over and the effects of the interference of a government representative in the market having passed, the Wall Street Journal says:

The corner in cotton which so many not long ago were deploring as a calamity, because it led to a falling off in consumption, the closing of many mills in this country and a decrease in exports, now appears in a different light. The manipulators in the corner have been aided by the fact that there is a shortage in the world's supply, and that even an American crop of 10,000,000 to 11,000,000 bales is not too much for the constantly-increasing needs of the people of the earth. This accounts for the success of the operators in cotton, for if they had not been supported by actual conditions in the trade they would have failed, just as nearly all fall who attempt to corner a product of the soil. Whatever may be the outlook of the cotton market at this time, and whatever may be the facts as to the real value as represented by prevailing prices, the truth is that many European spinners are now rushing into the American market for supplies of cotton at present prices. The long-delayed export movement in cotton has set in with a rush. How long this will continue it is, of course, difficult to predict, but while it continues it is a fact of the largest interest and significance.

From Friday to Tuesday, inclusive, the exports of cotton were 184,711 bales, for which Europe must pay over \$9,000,000. Total exports since September 1 are only 47,000 bales less than in the corresponding period last year. The accumulation of cotton bills in New York is on an almost unprecedented scale, and it is not surprising, therefore, that there has been a break in exchange to the point of forcing gold imports, notwithstanding the efforts of foreign bankers to prevent a depletion of their gold supplies. There is a point beyond which restrictive measures cannot go, and when the exchange market unmistakably calls for gold as the only way of making payment for indebtedness incurred, the gold must be shipped.

This is all the more important to us because the present import movement is not forced. That is to say, the gold has not been bought for an emergency in the money market. It is coming in response to a legitimate movement of commerce, in obedience to a law of trade. So even with the prospect of a somewhat reduced yield of cotton, the high prices make the return to this country more than equivalent for a crop of unprecedented proportions. The high prices of cotton, therefore, turn out to be a development of far-reaching benefit to the United States. Cotton is still king. Our crops, after all, are the real tests of our national prosperity. Instead of keeping our eyes so steadily fixed on the iron and steel trade as the thermometer registering the activity of

trade in this country, it might be well to pay more attention to our crop situation and to the foreign demand which enables us to pay off our foreign indebtedness and accumulate further supplies of money. There has been no failure of nature to supply us with ample wheat, corn and cotton, while the necessities of the world assure us of a market for all our surplus at prices that increase our wealth.

The gold imports, while not forced by monetary emergencies, come in good time to take the place of bank reserves depleted by the Western and Southern crop-moving demands, and it is a movement also that should have a most beneficial effect upon business sentiment by diverting attention from those features of the situation which have made for depression to those which point to increase of the national wealth and continued business activities.

The Wall Street Journal fitly heads its editorial "What We Owe to Cotton." The facts which it recites showing the influence of the cotton crop upon the foreign trade of the country are generally known, but their repetition is quite timely, and should go a long way toward counteracting the impressions created by the bear movement of a month or more ago. With so much owing to cotton, it is suggested that perhaps something is owing to the cotton-growers from a certain department of the national government.

Mr. A. A. Fisher, manager of the Norfolk Mills of the Cotton, Oil & Fiber Co., writes to the Manufacturers' Record as follows:

Your good paper must reach a great many branches of business, as since our notice has appeared in your paper our influx of mail has increased fully 100 per cent.

POWER AT COLUMBUS.

Major George D. Burbank of New York, after a week spent in inspecting the water-power in and near Columbus, Ga., made the statement that the dam at North Highlands, on the Chattahoochee river, can develop more power than the water-power now used by all the industries at Lowell, Mass. The Columbus Enquirer-Sun of November 15 devotes nearly four columns to an interview with Major Burbank in which he made that statement, together with others, explaining the magnificent opportunities for Columbus in its water-power. He said that New England holds its water-power at a premium, and had practically developed all of it in the manufacturing state, even small streams having been dammed and the water-power utilized wherever possible. Recalling his experience as chief engineer of a company which developed 100,000 horse-power at Niagara Falls, he said that before the power was developed steam-power cost from \$45 to \$300 per horse-power per annum on a basis of twenty-four hours a day. Now electric-power at much less cost is rapidly supplanting steam in Buffalo, and more power is to be developed on both sides of Niagara Falls. The price of electric-power at Columbus is \$15 per horse-power per annum, which Major Burbank thinks is the bottom limit, and much cheaper than such power in other places in the country less advantageously situated than Columbus for industrial operations. He strongly urged that the extraordinary and cheap power of Columbus, its railroad facilities and its trained workmen should enable it to develop its industries wonderfully, not confining them to cotton. He said that bauxite from a mine in North Georgia is sent to Buffalo, N. Y., where it is manufactured into aluminum, and suggested that as Columbus power is as cheap as that of Buffalo, with Columbus nearer tidewater, there is no reason why this aluminum should not be made in Columbus. After comparing conditions at

Columbus with those elsewhere, Major Burbank said: "Not a single New England city has developed as much water-power as can be developed between the Eagle and Phenix Mills and the northern line of the Chattahoochee Falls Co. at Columbus." He added that while water-power directly applied is the cheapest in the world, electric-power is more elastic, and can be distributed and used to better advantage. Not long ago it was stated that in spite of the construction of the large dam at North Highlands about three years ago, but 240 horse-power for electrical purposes was left for sale in Columbus. This talk of Major Burbank's ought to encourage a greater development at Columbus of results from the Chattahoochee power.

OHIO RIVER POWER.

Engineers and others said to represent a large Eastern syndicate have been in Louisville, Ky., during the past week in examination of the falls of the Ohio river there in connection with a project for utilizing, if practicable, the water-power for the generation of electricity. The visitors have consulted with Major George McC. Derby, the United States engineer in charge of government work at that point, and the plan is said to involve an expenditure of \$11,000,000 and the construction of a 75,000-horse-power plant, the power thus obtained to be used in operating traction roads, electric plants, etc., in Cincinnati, Indianapolis and other cities. The Louisville Courier-Journal sees in the plan the possibility of immense advantages for its city in extensive growth of interurban electric railways in Kentucky and Southern Indiana, and in an expansion of manufacturing by small plants, which contribute so greatly to a city's development, but which are not large enough to warrant the development of their own power.

THE COTTON MOVEMENT.

Since January 1, 1903, cotton to the value of \$237,982,410 has been exported. That amount is but \$52,131,097 less than the value of the cotton exports during the whole of 1902. Moreover, that amount represents 4,722,502 bales, an average of more than \$50 a bale, while in 1902 the total amount represented an average of less than \$44 a bale for 6,679,328 bales. The total value of exports of cotton since January 1, 1900, is more than \$1,142,000,000. It is stated that Southern cotton mills are buying ahead. There are indications of this in the report for November 13 of Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, which shows that the amount of cotton brought into sight during the seventy-four days of the present season was 3,722,952 bales, a decrease under the same period last year of 347,230 bales; exports were 1,891,242 bales, a decrease of 31,638 bales; takings by Northern mills 377,456 bales, a decrease of 134,711 bales, and by Southern mills 466,062 bales, a decrease of 25,988 bales.

AMERICAN RAILS FOR TURKEY.

It is announced that the rail mills of the Maryland Steel Co. at Sparrow's Point, Baltimore, will soon begin work upon 20,000 tons of steel rails for a road which runs from Beirut, on the Mediterranean coast of Turkish Asia Minor, in the direction of Mecca, to which the road will ultimately be extended. The contract for the rails, which was awarded to the Pennsylvania Steel Co., the parent of the Sparrow's Point Works, was received in open competition with the Krupp's of Germany and with Belgian and English manufacturers. This order is but a feature of the movement begun some years ago of American iron and steel products into foreign

markets, which brought customers to the Maryland Steel Co. from China, Russia and Australia. What was called the American invasion was temporarily suspended during the recent activity in iron and steel in the American markets.

ELECTRIC AND STEAM ROADS.

Speculations concerning the increase of competition between electric railways and steam railroads are constantly arising. The success of electricity as a motive power for suburban and interurban railways, as well as for city service, has aroused anticipations that it may wholly supplant steam for all kinds of railway service. Nevertheless the competition of electricity has stimulated invention, with the result that improved steam locomotives have been produced for suburban and interurban service—engines that will stop and start quicker than ordinary locomotives, and will, moreover, get under full headway more speedily.

Considering the question of interurban service, it is interesting to note that on the run from London to Brighton, England, between which cities a single-rail electric railway is proposed, the steam road connecting those points has displayed its ability to cover the distance of fifty-one miles in forty-eight and one-half minutes. A report of the test shows that the train consisted of five cars weighing 140 tons, and the engine was also not of unusual dimensions, having 19x26-inch cylinders and 78-inch drivers, and carrying 180 pounds steam pressure. This fine run was made in spite of unfavorable weather, there being both wind and rain, consequently it is reasonable to expect that it can be regularly done. The average speed was 63.09 miles per hour, and the speed on the up-grades, the heaviest of which is twenty feet to the miles, was sixty to sixty-eight miles per hour, but on down-grades the rate was, of course, much higher. In one place a quarter of a mile was run at the rate of ninety miles per hour, and for fifty out of the fifty-one miles the running time was forty-four and three-quarters minutes, the three and three-quarters minutes required to run the additional mile being demanded by slow speed at terminals.

It is said that the projected single-rail electric railway is to make the London and Brighton run in forty minutes, but even if that speed should be realized, it appears probable that the steam railroad will be able to hold its own against the new competitor. Persons familiar with traveling on electric cars soon realize that such vehicles when traveling no faster than thirty miles an hour do not give the passenger the comfort equal to that afforded by steam railroad cars moving at twice that speed, conditions being equal as to track. A little reflection makes plain the reason for this difference. The electric car is its own locomotive; that is, the machinery which is moved is attached to its own axles, and consequently the noise and vibration are greater than that of a car drawn by a steam locomotive.

Notwithstanding this difference in the matter of comfort, experience shows that passengers will take an electric car in preference to a steam car where the conditions of frequency of service and ready access prevail with reference to the electric line, but it is still doubtful, unless electric rolling stock and motive power should be considerably improved, whether they can hold their own in competition with steam roads for long-distance travel.

SOUTHWEST MINERALS.

Prof. Robert T. Hill, who was for many years connected with the United States Geological Survey, is of the opinion that only a beginning has been made of

the development of the mineral resources of the great stretch of prairie and swamp land between New Orleans and Tampico. He expects that region to become a great center for the production of salt, sulphur and all the minerals that are usually found in the vicinity of oil deposits. In an interview with the New Orleans Picayune he called attention to the fact that the oil fields of Texas and Louisiana were enlarged more quickly than any other field in the history of the oil industry, and expressed the opinion that discoveries of oil will continue to be made in the Southwest almost indefinitely, and that that section will soon have enough oil to supply the world. Operations in mining salt and sulphur are being steadily advanced in Louisiana, and oil development is persistently under way in that State and in Texas, and in the meantime, as Professor Hill points out, the surface of that region, with the redemption of swamps and irrigation, is becoming of greater and greater importance agriculturally, and especially as to rice, and the attention of moneyed men is being attracted thereto.

MISSOURI INDUSTRIES.

According to the annual report of State Labor Commissioner Anderson, manufacturing enterprises in Missouri have \$14,455,663 invested in grounds, \$23,879,279 in buildings and \$23,272,208 in machinery. They turned out last year goods valued at \$270,456,232, using \$168,116,121 worth of supplies and materials and paying \$49,560,772 in wages to 87,282 males and 21,855 females.

The Sewanee Review.

The leading paper in the October issue of the Sewanee Review, edited from the University of the South, indicates the breadth of that progressive and inspiring quarterly. Some months ago Lawrence J. Burpee read before the Literary and Scientific Society at Ottawa a paper upon Canadian novels and novelists. Literary developments of the past ten years have made us more or less acquainted with Gilbert Parker, Charles G. D. Roberts, William McLennan, T. G. Marquis, Robert Barr, Ralph Connor and other pleasant clients of American publishers. But this paper, which has been reproduced in the Review, presents a more comprehensive survey of the Canadian school of the present and the past. Other papers are: "The Real and Ideal in History," by Frederick W. Moore; "The Services of Naturalism to Life and Literature," by Maetin Schuetz; "Browning's Place in the Evolution of English Poetry," by Lewis Worthington Smith; "Sidney Lanier's Lectures," by L. W. Payne, Jr.; "One Phase of Literary Conditions in the South," by Carl Holliday; "Classic Versification in English Poetry of the Sixteenth Century," by H. Carrington Lancaster; "Frank R. Stockton," by Edwin W. Bowen; "Roumania and the Monroe Doctrine," by Edmund Arthur Dodge, and "The Far Eastern Situation," by Edwin Maxey. The reviews and notes are not the least interesting of the contents of the quarterly.

The Louisiana oyster commission, after a nine days' cruise among the fisheries of the State, has returned to New Orleans and reported that everywhere it found the oyster industry in the best condition. The commission is particularly interested in the workings of the oyster law, and will have some amendments to submit to the next legislature. For that body a report is being prepared, and a comprehensive article upon the oyster industry of the State will be published in pamphlet form for the use of the legislature and for circulation throughout the country.

DEVELOPMENTS IN THE GREENBRIER VALLEY.

By ARTHUR S. MORTON.

[Written for the Manufacturers' Record.]

It is interesting to watch the strides in development that are made by a new country as it emerges from the wild estate and takes on the conditions of a commercial thrift. The transformation is a steady progress that outstrips the imagination and keeps it keenly in pursuit.

Such a country is that which lies through the great lumber belt of West Virginia, extending from Ronceverte in that State through the valley of the Greenbrier to its headwaters near Durbin, and thence in a northwesterly direction across mountain ranges to the head of Tygarts valley near Elkins.

Through that section the course of development has been most marked and rapid, especially along the Greenbrier, where railroad facilities have longer been enjoyed. Just a year ago it was in the track of my travel to pass through the length of this beautiful valley, a journey then made possible by the recent extension of the Chesapeake & Ohio. Today as I passed over the same country its progress was everywhere apparent. Then there was a confused, unfinished look about the rough board houses and stores so hastily constructed in every village, while about the new depots the lumber camps and saw-mills were scarce under cover. In the place of these crudities the towns now present the appearance of a permanent thrift with their neatly-painted homes surrounded by nicely-kept grass plots and their well-stocked stores thronged with ready buyers. The saw-mills, too, are working under cover, with plenty of shed room for the large stocks of lumber that continue to accumulate in spite of frequent and heavy shipments. More people and more travel, too, have come to the district, a fact made evident by the recent doubling of passenger train service. With the multiplicity of mills has also come a steady increase in freights, justifying the daily haul of one and sometimes two heavily-loaded trains of from fifty to sixty cars each.

Superintendent Pierce, in charge of this division of the Chesapeake & Ohio, with whom I traveled a great part of the way, is authority for the above statement, and "further," said he, "the business along this line will grow continuously. There is a constant demand for freight cars, both for lumber and cattle shipments, the latter now coming to the road in great numbers from the fine grazing districts on the open farm lands lying back from the forest tracts. In the lumber line we have a supply inexhaustible within the life of this generation. We are up against a 40-year proposition, and estimate that not even within that period can all the timber tributary to this road be gotten out." At first thought this seems a rash statement, yet it is endorsed by the best-informed lumbermen of the district. In support of this view I was told by an unquestioned authority that ere the road was built a general estimate of resources put the timber supply tributary to it at 3,000,000,000 feet, and these figures, it is now conceded, in the light of present development, are under rather than over the mark. At any rate, it is expected that the small timber, carefully guarded from the present cutting, will serve to perpetuate the forest. A noticeable fact in the method of lumbermen who own their tracts in fee is the care with which this young growth is preserved and the clearing up from the ground of all fragments of felled trees. While this is done in some instances to protect the sapping growth, it is encouraged in large measure by the

increased uses and demands for all parts of the tree. Thus the small limbs and even crooked and knotty parts each have their uses in the various marts of trade, becoming more and more valuable as the forests of the country are gradually being depleted.

Forest fires have, with the advance of lumbering enterprise, caused heavy losses and become a serious menace to both the old and young timber, especially along the spruce levels, where great tracts of this valuable timber abound, growing so closely as to cultivate a deep moss formation, which when dry is easily ignited by the careless dropping of a match or flying sparks from frequent camp fires that dot the mountain side. Thus ignited this moss burns fiercely and burns long, destroying the largest trees. Such danger is not encountered in the lower levels among the hardwoods, where the light leaves burn like a flash and do but little damage to trees of sturdy growth. On one very valuable tract of spruce I noticed that the greatest care was taken to prevent forest fires by clearing the land of all inflammable material as soon as the large trees were cut out.

In ascending the Greenbrier valley the lumber district is entered not far north of Ronceverte near the mouth of Anthony's creek, a fact made evident by large quantities of sawed timber seen ranked up near the railroad siding. While this is, so to speak, but bordering on the great lumber district, it has nevertheless very recently become an important point, from which heavy and frequent shipments are made. At Renick a considerable town has been built, and in addition to a large general lumber business, a company has recently been organized there for the purpose of manufacturing telegraph and telephone poles. These are cut from the second growth of chestnut, and are already being shipped in quantities, for which purpose many cars are required. This to the Greenbrier section is an experimental industry, but bids fair to prove a remunerative venture. Seebert is another town that has in rapid growth outstripped the nearby settlements and become a lumber center. Very recently its commercial importance for years to come has been assured by the sale of large lumber interests to a syndicate whose natural and economic point of shipment must be at that town. The settlement is located at the confluence of Greenbrier river and Mountain Lick run, a small stream that finds its source eight miles back in a steep, narrow valley. This area is grown thick with the best hemlock, nearly 90 per cent. of which is readily accessible, while scattered freely through it is a good grade of hardwoods in red and chestnut oak. It is estimated that this tract of 43,000 acres will yield 20,000,000 feet when saved. The syndicate has been incorporated, and, it is now understood, will begin work as soon as may be practicable. Another large sale of timber rights has also been effected, the property lying mostly on the east bank of the river—the Hoffman interests, embracing a territory stretching from the north of Durbin to a point well south of Marlinton, some 400-odd miles in length and covering 108,000 acres. Tanbark has been the leading object in this acquirement to supply tanning plants being established at Marlinton and Durbin, though much fine timber is secured thereby.

Marlinton, the county-seat of Pocahontas, is the newest-looking old town in

this section of the State. Thrice-repeated fires within its limits during the past eighteen months have proved disastrous, while the fire of a year ago practically destroyed the business section of the town, including some residence properties, but the place has like magic risen from its ashes and upon the old sites has erected buildings of a much better class. While this rehabilitation of business properties was in progress the resident section was also extended by the addition of many pretty homes, so that today the place is practically new and with a property rating much greater than obtained before the fires. Among the conspicuous structures nearing completion is a three-story brick banking and office building and the group of large buildings now under cover for the tanning company. These last have an immense floor space and large sheds, which last are being packed with thousands of tons of oak and hemlock bark. Heavy machinery of the latest pattern is also being installed, and all worked rushed with a view to early operation of the plant. This industry, when up to its capacity, is designed to give employment to 150 operatives. As a lumber market Marlinton is forging to the front, with a record in that line showing receipts from shipments of 25,000 feet per month for the season. In that vicinity is much fine timber of various kinds, including some extra-heavy hemlock said to be capable of yielding 40,000 feet to the acre, with clear trunks running an average height of thirty feet free from limbs or knots.

An industry that has attracted attention in that section, and which from a monetary standpoint is considerable, is the manufacture of locust pins or tree nails, as they are called, used for ship-building instead of metallic nails. When the visitor first sees this queer-looking line of merchandise in bulk as it covers the railway yards and fills large box cars he is at some loss to divine the purpose and value of such product, but an official hand by is ready to explain. There is no trouble about the demand. That is always ahead of the supply and keeps the manufacturer on a run to keep up with his orders. Tree nails in carload lots are dispatched to ship-supply dealers in Baltimore and Belfast, Maine, in the East, and in the West are sent as far as the cities of the Pacific States, while some even find market in Quebec, Canada.

When our train next stopped it was held up just below the town of Cass, for the railway yards there were blocked with loaded lumber trains, so we waited by the river side till the blockade was relieved enough for the passenger train to slip through. This is the place that all visitors stop to marvel at or admire. The town is named after Mr. J. K. Cass, vice-president of the lumber company, on whose land the place is built, and who resides at Tyrone, Pa. In point of age Cass is the infant of them all, yet at fourteen months it was an incorporated town, with all the officers and functions of such an existence. It was, so to speak, hewn out of the forest wilds, where no habitation had previously been. Anticipating the coming of the railway, it was well under way when the iron horse snorted in, and has since kept right on, giving employment to hundreds of men, both in the work of town building and improvement and in the greater work of feeding the saw at the mill, which turns out from 75,000 to 80,000 feet of lumber daily. The town is headquarters for the West Virginia Spruce & Lumber Co., which, in fact, has established the place. It is here that the network of short-line railways intersecting Cheat valley discharge all of their cargoes of logs, and it is here

that the largest and best-equipped band-saw mill to be found in the Greenbrier district is located. Since I visited the place a year ago it has added to its really twenty-five substantial buildings, it has put in an electric-light plant, a reservoir and system of water-works and has laid eleven miles of water piping throughout its great mill as a precaution against fire. With additional and improved new machinery and strung with electric lights, the mill plant is prepared to do night service, thus operating the twenty-four hours and raising the daily capacity to 150,000 feet, an output which its present run of

orders necessitates. During the month of August its shipments loaded 442 cars, while the receipts at the depot for incoming and outgoing freights, independent of the passenger business, averaged between \$17,500 and \$20,000 per month. At present the mill yards are carrying a stock of sawed timber exceeding 3,000,000 feet.

I have mentioned this interest more specifically because it affords the most striking instance of rapid yet perfect development that has come under my observation in a section widely noted for its enterprising thrift and energy.

SOCIALISM'S POISON AND ITS ANTIDOTE.

By THOMAS P. GRASTY.

[Written for the Manufacturers' Record.]

It is generally conceded that the existing depression in iron and steel was caused by the stoppage of consumption in the building trades, and that strikes were the cause of that stoppage. As iron is considered the business barometer, the present depression will cause thinking people to give more serious heed to the damage to national prosperity already done and liable yet to be done by labor gone mad.

It is true that so profound a student of iron conditions as Mr. Edward Atkinson has declared that the existing depression will be merely temporary. While Mr. Atkinson has for several decades been a true prophet on this subject, yet it is possible that this time he has left out of his calculations the new power for evil which has waxed so strong during the last few years. And thus it is possible that this new undermining agency, whose ways are suicidal and whose motives are beyond comprehension, may rob all precedents of significance and upset the most intelligently calculated conclusions.

But it is not the purpose of this article to discuss whether the present depression is to prove temporary or permanent. The iron situation and the evil wrought in the stoppage of work requiring enormous quantities of iron (and by iron I mean iron and steel) are mentioned solely in order to concentrate public attention upon the poison that is being systematically injected into the minds of the workingmen of this country to an extent that calls for some systematic plan of counteraction; to a degree that calls for the vigorous administration of some antidote. Everyone admits that if some of the mind-poisons that were being injected a few years ago in the form of heresies appealing to the general ignorance as to the true and scientific relationship of capital to labor, and to the deeper ignorance concerning the true functions of money—every intelligent person, I should have said, will admit that if a vigorous antidote, in the form of a systematic campaign of education, had not been administered the results might have been incalculably mischievous. The late financial heresy that the business world regarded as such a menace to the country's well-being was, in comparison with the new menace, as an ordinary thunderstorm in comparison with a cyclone.

This new menace, which, if not persistently, intelligently and earnestly counteracted, will, in a few more years, play cyclonic havoc with everything that we consider worth having, is the propaganda of socialism now going on in labor circles everywhere in these United States. When I spoke of this a few days ago to a business man of "more than ordinary intelligence" he looked at me as though he thought I was the most distracted alarm-

ist allowed at large. But then his attention was called to the fact that at the New Orleans convention of the American Federation of Labor last year those who supported a resolution to convert that organization of nearly a million and a half of American workmen into an instrument of socialism were more than six-thirteenths of the 9000 delegates in attendance. And if an out-and-out socialistic resolution be not adopted at Boston this week it will be not because there are not enough voters in favor of it, but because the leaders of the propaganda deem it the better policy not to show their hand at this stage of the game. These socialist leaders are not fools by any means, no matter how crazy the majority of labor leaders may seem in killing the geese that lay them golden eggs. The socialist leaders are not yet the leaders in charge of the labor unions. The socialist leaders are curbing their individual ambitions that they may, with better grace, appeal to the rank and file to accept their doctrines. Their work is to inject the virus into the minds of the members of the various unions. Most of them are intelligent; many of them are conscientious. They believe they are doing a work of philanthropy that may well be compared with that of the world's greatest reformers—a work of patriotism that places them on the same plane as that occupied by those whom we have been taught to revere the memory of as the saviors of their country.

No man can read an article entitled "The Class Struggle," which appeared in a recent issue of *The Independent*, without a realizing sense of the writer's ability and earnestness of purpose. He is Jack London, a socialist, who has written a number of clever Klondike stories and a book in the interest of socialism. The tone of London's article on "The Class Struggle" is ominously calm and dispassionate. Among its statements are many that are palpably true, and it is so many of these truths that the owners of capital, from the multi-millionaire to the farmer, whose capital is only his acres, his live-stock and his implements, may wisely give serious—aye, solemn—consideration. The coming class struggle, London declares, might have been averted by the absorption into the capital-owning class "of the strong and capable members of the inferior class." That this has so generally occurred in the past he attributes to the fact that "an undeveloped country with an expanding frontier gave equality of opportunity to all." Here, he declares, the capable, intelligent member of the working class found a field in which to use his brains to his own advancement. Instead of being discontented in the same ratio with his intelligence and ambitions, and instead of radiating among his fellows a spirit of revolt,

he left them to their fate and carved his own way to a place in the superior class.

All that is, in a measure, true and original, but his next statement is the threadbare reiteration of an error that has somehow got to be a popular one: "The gateway of opportunity has been closed, and closed for all time." God save the mark! That absurdity is followed by this echo from the yellow journals: "Rockefeller has shut the door on oil, the American Tobacco Co. on tobacco and Carnegie on steel. After Carnegie came Morgan, who triple-locked the door. These doors will not be open again, and before them pause thousands of ambitious young men to read the placard: 'No Thoroughfare.'"

Now, as a matter of fact, I venture to say that no three concerns were ever known to be more diligently in search of ambitious young men of sound principles, capacity and energy than are today the three great concerns which this socialist writer says has shut in young men's faces the door of opportunity. Nor have the opportunities to rise from low places to high ever been so abundant as those offered to the employees of those three concerns, to wit, the Standard Oil Co., the American Tobacco Co., and the United States Steel Corporation. In fact, one of the main things to which the Standard Oil Co.'s success has been attributed by those in a position to know its inner workings has been its keen instinct for discovering and bringing into its entourage young men of the kind that Jack London says are standing out in the cold reading the placard, "No Thoroughfare."

But it was not argument with this writer that prompted these comments on his views and conclusions. The article is one that not only reveals the method of inoculation, but, often showing how the labor element is already irremediably saturated with socialistic virus, boldly asks of capital, "What are you going to do about it?"

Labor's boycott of the militia is perhaps the most unblushing step it has taken in the direction of—well, it may as well be called by its right name—treason. This young writer declares that the hatred of a trades-unionist for the militia is "the hatred of a class for the weapon wielded by the class which it is fighting. No workman can be true to his class and at the same time be a member of the militia. This is the dictum of the labor leaders." And this dictum the writer justifies after citing a dozen or so recent endorsements of it by labor organizations through formal anti-militia resolutions and otherwise which, he declares, are only a dozen instances out of thousands. Labor's bold stand in opposition to this particular instrumentality of government was not taken until the socialist virus began to saturate organized labor pretty thoroughly.

The aim and object of the propaganda is admittedly "to organize the working class and those in sympathy with it into a political party, with the object of conquering the powers of government and using them for the purpose of transforming the present system of private ownership of the means of production and distribution into collective ownership by the entire people." Socialized labor's ultimate object, in the words of this writer in *The Independent*, is "to capture the political machinery of society, and by that machinery to destroy present-day society." The smoke from the firing line of the class struggle was smelt by President Roosevelt, so London declares, when he said, "Above all, we need to remember that any kind of class animosity in the political world is, if possible, more

destructive to national welfare than sectional, race or religious animosity."

How this organization—this socializing of labor—is being carried on will be news to the sober, right-thinking, honest, industrious, patriotic millions who have got to stand together in resisting the carrying out of the socialists' scheme to destroy society. Let these good people give ear to the present plan for organizing a power capable of compassing the socialistic program. I quote from the article by Jack London:

"Failing rapid success in waging a sheer political propaganda, and finding that they were alienating the most intelligent and most easily organized portion of the voters, the socialists lessened (learned) from the experience and turned their energies upon the trades-union movement. To win the trades-unions was well-nigh to win the war, and recent events show that they have done far more winning in this direction than have the capitalists.

"Instead of antagonizing the unions, which had been their previous policy, the socialists proceeded to conciliate the unions. 'Let every good socialist join the union of his trade,' the edict went forth. 'Bore from within and capture the trades-union movement.' And this policy, only several years old, has reaped fruits far beyond their fondest expectations. Today the great labor unions are honeycombed with socialists 'boring from within,' as they picturesquely term their undermining labor. At work and at play, at business meeting and council, their insidious propaganda goes on. At the shoulder of the trades-unionist is the socialist, sympathizing with him, aiding him with head and hand, suggesting—perpetually suggesting—the necessity for political action. As the Journal of Lansing, Mich., a republican paper, has remarked:

"The socialists in the labor unions are tireless workers. They are sincere, energetic and self-sacrificing. * * * They stick to the union and work all the while, thus making a showing which, reckoned by ordinary standards, is out of all proportion to their numbers. * * * Their cause is growing among union laborers, and their long fight, intended to turn the Federation into a political organization, is likely to win."

"Night and day, tireless and unrelenting as a mortgage, they labor at their self-imposed task of undermining society. Mr. M. G. Cunniff, who lately made an intimate study of trades-unionism, says: 'All through the unions socialism filters. Almost every other man is a socialist, preaching that unionism is but a makeshift.' 'Malthus be damned,' they told him, 'for the good time was coming when every man should be able to rear his family in comfort.' In one union with 2000 members Mr. Cunniff found every man a socialist, and from his experiences Mr. Cunniff was forced to confess, 'I lived in a world that showed our industrial life a-tremble from beneath with a never-ceasing ferment.'"

"The socialists have already captured the Western Federation of Miners, the Western Hotel and Restaurant Employees' Union and the Patternmakers' National Association. The Western Federation of Miners at its last convention declared:

"The strike has failed to secure to the working classes their liberty; we therefore call upon the workers to strike as one man for their liberties at the ballot-box. * * * We put ourselves on record as committed to the program of independent political action. * * * We indorse the platform of the socialist party, and accept it as the declaration of principles of our organization. We call upon our members as individuals to commence immediately the organization of the socialist move-

ment in their respective towns and States, and to co-operate in every way for the furtherance of the principles of socialism and of the socialist party. In States where the socialist party has not perfected its organization, we advise that every assistance be given by our members to that end. * * * We therefore call for organizers, capable and well versed in the whole program of the labor movement, to be sent into each State to preach the necessity of organization on the political as well as the economic field."

"The capitalist class has a glimmering consciousness of the class struggle which is shaping itself in the midst of society, but the capitalists, as a class, seem to lack the ability for organizing, for coming together, such as is possessed by the working class.

"This revolt, appearing spontaneously all over the industrial field in the form of demands for an increased share of the joint product, is being carefully and shrewdly shaped for a political assault upon society. The leaders, with the carelessness of fatalists, do not hesitate for an instant to publish their intentions to the world. They intend to direct the labor revolt to the capture of the political machinery of society. With the political machinery once in their hands, which will also give them the control of the police, the army, the navy and the courts, they will confiscate, with or without remuneration, all the possessions of the capitalist class which are used in the production and distribution of the necessities and luxuries of life. By this they mean to apply the law of eminent domain to the land, and to extend the law of eminent domain till it embraces the mines, the factories, the railroads and the ocean carriers. In short, they intend to destroy present-day society, which they contend is run in the interest of another class, and from the materials to construct a new society which will be run in their interest.

"On the other hand, the capitalist class is beginning to grow conscious of itself and of the struggle which is being waged. It is already forming offensive and defensive leagues, while some of the most prominent figures in the nation are preparing to lead it in the attack upon socialism.

"The question to be solved is not one of Malthusianism, 'projected efficiency,' or ethics. It is a question of might. Which ever class is to win will win by virtue of superior strength; for the workers are beginning to say, as they said to Mr. Cunniff, 'Malthus be damned.' In their own minds they find no sanction for continuing the individual struggle for the survival of the fittest. As Mr. Gompers has said, they want more, and more, and more. The ethical import of Mr. Kidd's plan of the present generation putting up with less in order that race efficiency may be projected into a remote future has no bearing upon their actions. They refuse to be the 'glad perishers' so glowingly described by Nietzsche.

"It remains to be seen how promptly the capitalist class will respond to the call to arms. Upon its promptness rests its existence, for if it sit idly by, soothingly proclaiming that what ought not to be cannot be, it will find the roof-beams crashing about its head. No 3000 of its members, much less 300,000, are organized to crush the revolt which is spreading with such rapidity. The capitalist class is in the numerical minority, and bids fair to be outvoted if it does not put a stop to the vast propaganda being waged by its enemy. Nor in this direction has it as yet conceived any adequate plan, such as its assailants have conceived and are putting into execution in their attempt to capture the trades-union movement, with

its millions of votes. It is no longer a question of whether or not there is a class struggle. The question now is, what will be the outcome of the class struggle?"

And so all the property-owning people of this country are challenged. What are they going to do about it? They are going to outvote you, to begin with, so soon as you begin to show any considerable strength, and sooner than then if they come to know what you are really after. To and with, if by any accident you should outvote them, they are going to resist you as they would any other kind of robber. They will soon realize that you will not stop with the confiscation of mines, factories and railroads, but that you will even more relentlessly, if given the power, carry out your program of "applying the law of eminent domain" to their land. The big multi-millionaires may not be able to resist you, but the millions of farmers of America will be amply able to annihilate you if need should arise for a measure so extreme. The farmers are not yet aware of your plan and program. When they come fully to understand your intentions, as they will before long, you will find out that the soil and climate of this republic is an unhealthy one for socialism.

To awake the farmers of the country to a realization of what the socialized labor union means is the antidote to the poison of the socialistic propaganda.

BUILDING AT ST. LOUIS.

Operations Are Healthy, Normal and Satisfactory.

[Special Cor. Manufacturers' Record.]
St. Louis, Mo., November 14.

Building operations in St. Louis are just now characterized by a healthy and normal activity that is or should be satisfactory to those directly concerned and to the public in general.

It is a mistake to imagine that building has been overstimulated, and that there is a rush of work for building mechanics, and consequently abnormally high wages. A belief seemed to prevail among those who have not kept thoroughly posted in such matters that World's Fair prospects have led to the investment of a large amount of capital in building operations, and that the building industries have all been overstimulated. This belief, to the extent that it is detrimental to the building trades and industries, is not founded upon fact. It is true that a great deal of construction work is going on just now. There are practically no idle mechanics, and workpeople of all classes are getting good wages. Nearly half a hundred great structures, ranging in the hundreds of thousands of dollars in cost, are in progress, and many more are projected, which promises continued activity. Of course, the World's Fair buildings, including the great structures in the main picture, the government, State and foreign buildings, have given employment, are giving employment and will continue to give employment to an army of mechanics. Aside from these, however, building is in progress all over the city. In what is commonly called the "downtown" section of the city many great skyscrapers are even now approaching completion.

Going further out, there are two great hotel buildings, two great apartment structures on Lindell boulevard, and many others scarcely less in size and cost. Besides these, manufacturing buildings and warehouses of large dimensions, but of less importance in the matter of ornamentation and cost, are going up in the northern and southern sections of the city and in other industrial centers, and all over town small business buildings, many residences, some of them of palatial proportions, and rows upon rows of

smaller dwellings and flats. These, with projected buildings, including railroad depots and warehouses, means the investment of an immense amount of capital in the aggregate, and equally, of course, they mean continued activity in building operations. It is nevertheless true that existing activity is of a normal and healthy character without overstimulation or feverish excitement. Many people who think of the building conditions in St. Louis and discuss them without thoroughly investigating the subject have an idea that prices are very high, and that the man who builds now, banking on the future for returns, will make a mistake. This is wrong. It is true that there has been some advance in the cost of all building materials. In some lines this advance has been very marked, but as a whole there is nothing in the aggregate figures that could be considered prohibitive, while in the matter of wages, figures obtained from the various trades-unions, and which must be accepted as official, show only a very slight advance when compared with last year.

Here are some official figures from the records that substantiate the assertion, already made, that building activity is not abnormal.

In 1902 there were issued 896 building permits for new brick structures during the first eight months of the year. For the same period this year, that is, ending with the month of August, 756 building permits for new brick structures were issued. The building commissioner's books show that the total cost of all building operations in St. Louis for eight months in 1902 was \$8,917,088, while for the same period this year the total cost of all building operations was \$10,941,452, showing the healthy increase of \$2,024,364. About the same ratio of increase will be found in the number of permits and the cost in the matter of frame buildings and additions and repairs to old brick and frame houses.

In the more generally interesting feature of workmen's wages the authentic figures show about the same natural increase. In some of the trades, in fact, wages are the same today that they were a year ago, though in most of them there has been some advance.

Mr. J. E. Spangler, secretary of the Trades' Building Council, whose authority upon such subjects can hardly be disputed, furnishes the following table of wages paid this year and last year:

	SCALE OF WAGES.	
	Per hour.	Per day.
	1902. 1903.	1902. 1903.
Plasterers.....	62½ 75	\$5 00 \$6 00
Carpenters.....	45 55	3 60 4 40
Bricklayers.....	62½ 65	5 00 5 20
Stonemasons.....	60 60	4 80 4 80
Lathers.....	50 62½	4 00 5 00
Gasfitters.....	60 62½	4 80 5 00
Hodcarriers.....	37½ 50	3 00 4 00
Marble and tile layers..	50 53	4 00 4 25
Painters.....	45 45	3 60 3 60
Plumbers.....	62½ 62½	5 00 5 00
Electricians.....	50 62½	4 00 5 00
Slate and tile roofers....	55 62½	4 40 5 00
Composition roofers....	50 55	4 00 4 40
Ironworkers.....	50 55	4 00 4 40
Sheet-iron and metal workers.....	50 50	4 00 4 40
Steamfitters.....	62½ 68½	5 00 5 60

In this relation Mr. Spangler said, in answer to questions:

"The labor situation in St. Louis is satisfactory. There is more work now than there was at the beginning of the year, and workmen are more generally employed. The prospects for the future are bright. The scale of wages being paid in St. Louis is not excessively high. The cost of living has increased during the past year very much more than the increase in wages. When the scale of wages in force in St. Louis is compared with that of other large cities, including Chicago, New York, San Francisco and New Orleans, there is practically no difference. Of course, local conditions, in view of the

World's Fair, have been affected somewhat, but even if there was not going to be a World's Fair there would be a great amount of building here, for this city has grown tremendously in the past five years, and this natural growth continues.

"I do not anticipate any labor troubles in the future. Prices, in my opinion, have reached only a healthy and normal level, and the present prices of both labor and material will not decrease to any extent, but, on the other hand, we may see higher prices after the fair. This city has just started on a new epoch, and there will be a steady and rapid growth here for many years to come. It is true that a great many mechanics have come to St. Louis recently, but they have not come here because higher wages are paid. Painters, for instance, are getting more wages in some Eastern cities than are being paid in St. Louis, and in some other lines the scale here is identical with the scale elsewhere. With prosperity to the employer must come prosperity to the employed."

A word or two in connection with the prices of materials will be found quite interesting. First-class hard red brick is in great demand at an increase of twenty-five cents per thousand over that of last year. Twenty per cent. is the increase in the price of yellow-pine lumber. First quality of laths have advanced from 10 to 15 per cent.; the poor quality is a drug upon the market. The price of lime has remained about the same as that of last year. American Portland cement has fluctuated, and can be bought now for fifty cents per barrel less than last year. In architectural iron prices have advanced from 7 to 10 per cent. Plate-glass prices have not changed any, but window glass has advanced 10 per cent. Lead pipe and plumbing advanced from 15 to 25 per cent. during the year, while roofing materials increased 30 per cent.

PROSPEROUS PADUCAH.

Bonds to Be Issued for Divers Public Improvements.

[Special Cor. Manufacturers' Record.]
Paducah, Ky., November 16.

Paducah's prosperity shows no abatement, and each succeeding week brings forth additional evidence of the fact that Paducah, Ky., is one of the best cities in the South from whatever standpoint viewed. The latest proof of Paducah's prosperity has been furnished by the action of her citizens in approving at the late election by an overwhelming majority an issue of \$200,000 of public improvement bonds. Of this issue, \$25,000 is for the construction of a new market-house, \$25,000 for a city hospital building and \$150,000 for the construction of paved streets. Under the method authorized by law in this State, whereby the abutting property-owners bear a share of the cost of reconstruction of streets, it is estimated that the above issue of bonds will secure the building of over five miles of modern paved streets. A contract was let by the city council a few weeks ago for nearly a mile of brick streets, so that Paducah has entered upon the construction of over six miles of new streets.

This new street work is but the beginning of a general reconstruction of all the principal streets of this city, for our people now recognize the fact that the immense street traffic that has grown up as a result of our rapidly-increasing wholesale and manufacturing business demands a paved street that will stand the heaviest hauling.

Paducah's wholesale business now amounts to \$14,000,000 annually, while her manufacturing business foots up nearly \$7,000,000. This past summer two new factories have located here—the Mergenthaler-Horton Basket Co. and the Rex

Manufacturing Co. of Chicago for the manufacture of picture frames. The Mergenthaler-Horton Basket Co. has erected a very large plant, and is equipped with a large number of special basket-making machines, and when fully equipped will be by far the largest plant of the kind in this country.

In addition to the above new factories, the following factories made this summer large additions to their plant and equipment: J. W. Riglesberger & Bro., lumber mill and box factory; O. L. Gregory Vinegar Co., Smith & Scott Tobacco Co., Lack Singletree Co., Paducah Peanut Co., Paducah Cooperage Co. and Paducah Packing Co.

In addition to the above evidences of growth, Paducah is distinguished in other ways. I make the assertion, believing it to be true, that Paducah is better equipped with municipal utilities than any other city in the South. Thus we have, of course, a street railway company and water, electric-light, gas and telephone systems. All cities of much size possess these utilities. But in addition we have a municipal steam-heating system by which already a large number of business and public houses are heated, and which will soon be extended to the residence portion of the city. And last, but by no means least, the Paducah Water Co., at an expense of \$100,000, is installing a filter system which will give us pure as crystal water even during that portion of the year when our rivers are at flood height.

In the last week in October Paducah was visited by the most disastrous fire, from a money standpoint, in her history. Three large wholesale buildings, with immense stocks of goods, and a large retail store were completely destroyed. The burned buildings will soon be replaced, however.

Paducah's bank clearings average much over \$100,000 for each day, and show a regular increase over last year of nearly 15 per cent.

One has also but to take a trip through the yards of the Illinois Central at this point to realize the fact that the freight traffic of this country has reached enormous proportions. Although the yards here are one of the largest on the great Illinois Central system, they are crowded all the time, and it is no uncommon occurrence to have from 1500 to 1800 loaded cars there at one time.

GEORGE H. DAINS.

GREATER VOLUME OF BUSINESS

Conditions in the Birmingham Iron Market.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., November 16.

Actual conditions of the iron market are yet difficult to obtain. The effort to hide the majority of transactions under the head of "private terms" is still prevalent. Every fellow is desirous of information concerning the action of his competitors, but, as a rule, all avoid, as far as they can, publicity concerning their own transactions.

On one point, however, there is unanimity in the reports obtained, and that is as to the volume of business concluded. There is no question as to their being a very material increase in that respect. There has been a material addition to the list of buyers and a material increase in the size of the orders. The most encouraging feature in the market is the willingness of the buyers now to make contracts for delivery during the first half of 1904. But they want the iron on the basis of present values, and on this point there is such a divergence of views between buyers and sellers that transactions for this delivery are very restricted. Some

have been concluded near the basis of prevailing values when a portion of the order included delivery during the balance of this year. Some business, but of a limited character, has been worked for the whole of next year, but the terms are a sealed book.

In some instances where buyers insisted upon being given a price for the first half of 1904, \$11.50 and in some cases \$12 has been named as the lowest that would be accepted. But these prices resulted in no business, and are given merely as evidence of the faith in the future of prices on the part of sellers. Rumors that in many cases have no foundation in solid facts are prevalent concerning prices that are being named and accepted. In the case of the reported sale of 15,000 tons of Nos. 3 and 4 foundry \$9 was the price named by rumor as the base price. The sellers of this lot, while withholding the exact price obtained, affirm to your correspondent that it was nearer \$9.75 than \$9. The deliveries on this lot covered four months, inclusive of this month. There was another lot of 12,000 tons sold on the basis of \$9.25 for No. 2 foundry, which rumor places also at \$9. The air is rumor-laden with reports that should be accepted with "Cum grano salis." There is no evidence that appeals to the credulity of a conservative inquirer that less than \$9.25 has been worked for No. 2 foundry. One and two car lot orders have been usurped by orders of greater magnitude, and lots of 5000 tons are now not uncommon, but the selling interests object to reporting either the price they accept or the details as to the lots.

But enough has been ascertained to warrant the statement that the sales of all the interests since the opening of the month have been fully equal to twice their output, and, in at least one case, this has been exceeded. The demand can be said to be verging on activity, and, by comparison with the last few months, it can be called active.

Shipments are reported as heavy, but that can be qualified by the statement that they would be heavy if cars demanded were promptly supplied. As it is, the shipments are limited by the cars obtained, and, as has been stated heretofore, there is very little probability of improvement in this respect in the near future. There is not exactly a famine as regards the scarcity of cars, but the supply for the time being is greatly less than the demand. This pertains not alone to the iron trade, as the coal interests are loud in their complaints about car supply. Their output, therefore, is limited to the tonnage the various roads can supply. The record of the Southern road shows that for the first seven months of this year it handled over 200,000 tons more than for the corresponding time last year.

As to the export trade there is not much to say. Cablegrams are being exchanged daily with foreign buyers, but there has been no increase to the business reported in last week's letter. The differences between buyers and sellers are so slight that one is only surprised that no business has resulted. The thing that we most want is a showing of diminution of stocks in furnace yards. We know that if the orders registered for shipment could get prompt transit stocks would show a diminution. But this showing cannot be made to the buyers' satisfaction until cars are in better supply. The iron is sold and it is ready to go, but the cars to move it are lacking. That is the condition in a nutshell. It is a great hardship on the sellers, as a free movement would tend to increased buying and a rally in prices. At the prevailing values the majority of the furnaces are netting material losses on every sale made, and your correspond-

ent is fully justified in stating that in some cases this loss runs close to \$2 per ton, and there are cases—limited, of course—where the loss will exceed these figures.

The Steel Mill and the Birmingham Rolling Mills have both shut down because of scarcity of orders. The expectation is that it will be only temporary, and that not later than the 1st of January both will resume operations.

The report of the Car Service Association shows that it handled during October 67,192 cars, which exceeded by over 10,000 the number for the corresponding period last year. The report for this month, it is anticipated, will show a total largely in excess of November, 1902.

The Sayre Mining & Manufacturing Co. filed its articles of incorporation the past week. It is capitalized at \$200,000. R. H. Sayre of South Bethlehem, Pa., is president, and John H. Adams, now assistant general manager of the Republic Company, is vice-president. According to the charter it can mine coal and iron ore, quarry rock and stone, make coke and the by-products of coal, and build and operate one or more furnaces, mills, factories and a rolling mill. This corporation has been spoken of in previous letters. It has commenced preliminary operations. In time it will add to our furnace capacity. The Tennessee Lumber Co. will open an office here and make this a point of distribution. It is capitalized at \$75,000. Its headquarters will be at Hamburg, Tenn. The Imperial Paint Works has also been organized, and will turn out every ten hours about ten tons of mineral paint obtained by grinding the hard red ore of this district. The Copeland Brick Co., lately destroyed by fire, will now be rebuilt as speedily as possible at a cost of \$35,000. There were a limited number of other corporations which filed their papers, but they were of no material significance.

Coal and coke are unchanged as to values, with a good demand for coal at the mines all the way from \$1.20 to \$1.65. Coke is in only moderate demand at \$2.75 to \$3 for furnace coke and \$3.50 to \$3.75 for foundry coke. The pipe works report more activity and the securing of a nice parcel of fresh business, part of which is for export to the West Indies and Mexico. Prices have been revised and are now for 4-inch, \$25; for 6-inch, \$24; for 8-inch, 10-inch and 12-inch, \$23.50; for 14-inch, 18-inch and 20-inch, \$22.50, and for 24-inch and 30-inch, \$22. Under favorable circumstances some slight shading on some of the sizes is possible.

J. M. K.

To Equip Repair Shops.

L. Arkin of Moscow, Russia, writes to the Manufacturers' Record as follows:

"Being in the market for a complete equipment of repairing shops with modern labor-saving-machine tools of the most improved type for an electric street railway line of about 200 miles length with 400 running cars, I would ask you to refer this inquiry to some responsible houses that are in a position to submit full estimates with drawings, illustrated descriptions and all particulars for such an equipment, instructing those houses to enter into immediate and direct communication with me regarding this. Tenders comprising fully the whole equipment of such shops in a thoroughly practical manner, as well as the modern design and construction of the shops themselves, will receive my special attention."

Sales in the Joplin (Mo.) district in the week ended November 14 were 8,273,810 pounds of zinc ore and 1,312,860 pounds of lead ore of aggregate value of \$162,810.

TOBACCO AS A REVENUE PRODUCER.

By COL. J. B. KILLEBREW.

[Written for the Manufacturers' Record.]

Tobacco is the most anomalous farm product in the world. Though used by more people and among more nationalities than any other one product, yet it is the most heavily-taxed product in the world. It is regarded by many publicists and by practical men of every vocation, including a large number of physicians, as a necessity as great or greater than that of tea or coffee or sugar. Soldiers and sailors and persons following strenuous physical occupations, such as lumbermen, miners, fishermen, brakemen, roustabouts, feel the want of tobacco more than the want of any other one article. The experiences of the Civil War demonstrated that soldiers would expose themselves to the greatest dangers to obtain tobacco. The Southern soldier had his supplies of tobacco, the Northern soldier his rations of coffee. The soldiers of each side would meet on the picket lines and exchange these articles, and the Northern soldier always felt that the tobacco he received in exchange for coffee gave him far more comfort than the coffee with which he parted could have done. It is also a curious fact that every class of persons who have become habituated to its use, from the most savage to the most civilized, enjoy tobacco and feel an indescribable and almost an intolerable longing when deprived of it. It is a fact demonstrated by observation and experience that tobacco does not injure or destroy the moral sense or enfeeble the intellectual faculties like whiskey or opium or hasheesh or cocaine. Indeed, with many persons the activity of the mental processes are increased by its use. It induces contemplation and leads to mental satisfaction, and rarely, unless used to excess, to mental stupefaction, as other narcotics almost invariably do. Irritability, impatience and bad temper in many persons are suppressed by its use, and give place to composure and placidity of temper. When a laborer returns from his work weak, tired, discouraged and misanthropic, repelling the advances of his wife and children in gruff tones, a few pipefuls of tobacco smoked in silence will often restore him to his normal condition of affection and sympathy and make the world look brighter and more attractive to him. Likewise a soldier in the trenches or trudging through mud and rain and cold finds no anodyne so comforting or powerful as tobacco.

With all these things in its favor, and the further fact that it is the poor man's luxury and the rich man's solace, and that it is practically in universal demand in some form or other, it is strange and unaccountable why it, above all other commodities, should be selected by all nations as a prime article of taxation. There is scarcely a government on earth that does not look to tobacco for the raising of revenue.

Beginning with the United States, we find that all manufactured tobacco is taxed at present at the rate of six cents per pound; cigars, \$3 per thousand. The tax levied in 1898 to meet the expenses of the war with Spain was twelve cents per pound on manufactured tobacco and snuff and \$3.60 per thousand on cigars. This was reduced 20 per cent. in 1901 for one year and in 1902 to the present rate.

The revenue derived from all kinds of manufactured tobacco amounted for the fiscal year ended June 30, 1901, to \$62,481,907, and for 1902 to \$51,718,258.45. The reduction of the tax on tobacco to six cents, which went into effect July 1,

1902, will probably make a reduction in the revenue to the amount of \$8,000,000 to \$10,000,000, but the figures are not yet available.

The value in farmers' hands of the tobacco crop grown in the United States in 1899 and reported in the twelfth census was \$56,993,003. The estimated value in 1902 was \$57,563,510. It will be seen that the revenue derived from tobacco one year with another has been about equal to the value of the product in farmers' hands. But when it is remembered that over 300,000,000 pounds of unmanufactured tobacco are exported out of a total of an average crop of approximately 830,000,000 pounds, valued at \$27,000,000, and that the amount imported is about \$30,000,000, it will appear that five-eighths of the crop, valued at \$35,600,000, pays a revenue approximately of 50 per cent. greater than its value in farmers' hands. This is an enormous tax, and is only equalled by that on spirituous liquors.

Turning now to the duties imposed by foreign countries on tobacco, we shall find them much larger. The United Kingdom, including England, Scotland and Ireland, levies a tax that amounts to an average of about 1200 per cent. of the value of this product in planters' hands. Great Britain is an open market, and tobacco may be shipped to certain designated ports of the country and put in the Queen's warehouse to be re-exported or manufactured. If re-exported, no tax is collected. Before it is removed for consumption or manufacture all injured or rotten tobacco is taken from the casks or boxes or other packages and burned in the Queen's pipe, and taxes are collected on the remainder. The tax on unmanufactured tobacco in the United Kingdom on every 100 pounds containing 10 per cent. of moisture or more is 77 cents per pound; if it contains less than 10 per cent. of moisture, 85 cents per pound. Cigars are taxed \$1.215 per pound; Cavendish or negro head, a kind of manufactured plug, \$1.095 per pound, and snuff with more than 13 per cent. of moisture, 91 cents, and with less than 13 per cent. of moisture, \$1.095 per pound. Manufactured tobacco manufactured in bond from unmanufactured tobacco is taxed 97 cents per pound.

Norway is also an open market, and the tax collected on seasoned leaf is 46.9 cents per kilogram (a kilogram is equal to 2.204 pounds)—this is about 22.3 cents per pound; cigars and cigarettes, 96.4 cents per kilogram; all other manufactured tobacco, 56.2 cents per kilogram. A liberal reduction is made for the weight of the casks and cases.

The duty on raw tobacco in Sweden is but a little over half of what it is in Norway, being 26.8 cents per kilogram, but it is higher on cigars and cigarettes, being \$1.072 per kilogram, or 49 cents per pound; on other manufactured tobacco, 32.16 cents per kilogram, or nearly 15 cents per pound.

In Switzerland the duty on unmanufactured leaf is \$48.25 per 100 kilograms, or about 22 cents per pound. On carrots and rolls for the manufacture of snuff the tax is just double. Manufactured tobacco is taxed \$144.75 per 100 kilograms, which is 65 cents per pound, and cigars and cigarettes are taxed twice as much as manufactured tobacco.

Germany levies a duty of \$20.23 per 100 kilograms on raw tobacco, or a little over 9 cents per pound; \$64.26 per 100 kilograms on cigars and cigarettes, or 29 cents per pound, and on manufactured to-

bacco, \$42.84, or 19½ cents per pound.

Holland levies a very small tax on unmanufactured tobacco, which to the Hollander is an indispensable article of comfort or luxury. The rate of duty on raw tobacco is .2814 cent per 100 kilograms, or less than .14 cent per 100 pounds. On snuff and carrots, however, the rate is \$48.24 per 100 kilograms, and on cigars \$16.08 per 100 kilograms, or 22 cents per pound on snuff and 7.3 cents on cigars.

Belgium, its next-door neighbor, imposes a tax on manufactured tobacco nearly forty times as great as that of Holland. On raw leaf, including stems, the tax is \$10.615 per 100 kilograms. This is nearly 5 cents per pound. On manufactured tobacco the tax is \$115.18 per 100 kilograms, or a little over 52 cents per pound. Cigars, however, are taxed lightly, being a little over 11 cents per pound, or \$23.16 per 100 kilograms.

Russia imports leaf in bundles, upon which it collects a duty of \$11.888 per pound of 36.07 pounds, or 38 cents per pound. Manufactured tobacco pays a duty of about \$1 per funit, which is nine-tenths of a pound, or a duty of \$1.11 per pound. Cigars and cigarettes pay a duty of \$2.47 per funit.

France, Portugal, Italy, Spain, Austria, Turkey, Roumania, Costa Rica are regie countries, where the government makes a monopoly of tobacco. All tobacco intended for government manufacture goes in free of duty. By special permit unmanufactured tobacco may be taken to Austria, upon which a duty of \$8.526 per 100 kilograms is collected, or 39 cents per pound.

In Portugal the duty on manufactured tobacco is \$4.86 per kilogram, or \$2.29 per pound. There is no restriction upon the importation of tobacco manufactured upon the payment of the duty mentioned, but no permits are granted for the importation of the unmanufactured leaf. This is all done by the regie for the government. In all the other regie countries the importation of raw tobacco is prohibited. In France manufactured tobacco may be imported for private use of the importer upon the payment of \$694.80 for 220 pounds, or 100 kilograms. This is \$3.15 per pound, which is probably the highest duty on tobacco levied by any government, and to a citizen of the United States it would seem to be prohibitive.

The value of these government monopolies may be inferred from the fact that though France imported for the year 1897 tobacco valued at 28,105,111 francs, the revenue the previous year derived from tobacco was 376,665,000 francs, or nearly thirteen times its cost.

It would be a great boon to the tobacco-growers of the United States if some regulation could be made under which the tax on tobacco could be decreased. It is a great hardship to the planter to get only one part in twelve of the price which leaf tobacco brings in the English markets. The United Kingdom imported from the United States for the twelve months ending June 30, 1903, 125,430,153 pounds of unmanufactured tobacco, valued at \$13,555,279, an average of nearly 11 cents per pound. The tax on this at minimum rates amounts to \$97,581,217, assuming that the whole amount should be taken for consumption in the United Kingdom.

The whole quantity of unmanufactured tobacco exported from the United States to foreign countries for the fiscal year ending June 30 was 368,184,084 pounds, valued at \$35,250,893. The United Kingdom takes nearly as much as France, Germany and Italy combined and over one-third of all that is exported, but much of that shipped to England is re-exported to Gambia and to British Africa and to other countries having close com-

mercial relations with Great Britain.

In addition to the unmanufactured tobacco exported from the United States to the United Kingdom, manufactured tobacco to the value of \$999,166 was taken. The manufacture of tobacco is greatly stimulated in England under an arrangement made with the revenue department by which the manufacturer is permitted to return the stems or midribs into the hands of the proper officer for destruction or exportation. This regulation has also been the means of increasing the quantity of unmanufactured leaf taken in the United Kingdom and reducing the requirements for manufactured tobacco.

WROUGHT BY THE STANDARD.

Effects of Its Entrance Into the Kentucky-Tennessee Field.

[Special Cor. Manufacturers' Record.]
Boroboursville, Ky., November 16.

Never before have the prospects in the Kentucky and Tennessee oil fields been so bright as they are at present, and there is much in the situation to justify the assertion that the era of real development is beginning. New operators are coming in daily, the old ones are renewing their efforts, and a basis for new confidence in the work has been established by the classification of Kentucky and Tennessee petroleum in the same grade as the product of the older fields.

The entrance of the Standard into this field undoubtedly served as the foundation for nearly all the work now under way. Previous to the Standard's entrance, over two years ago, more or less drilling had been carried on in several sections of this State for at least forty years. What is claimed to be the first oil well in America was drilled in Cumberland county back in the early twenties, and ever since the value of petroleum was discovered this State has been the object of some attention on the part of investors and speculators. From Barren county, down near the Tennessee line, to Floyd county, in the extreme northeastern part of the State, drilling had revealed oil in paying quantities, but when the operators obtained a well they did not know what to do with it. Owing to the inaccessibility of the country, the oil could not be transported without great expense, and as a usual thing the wells were white elephants on the hands of the operators. Thus, in most cases, the wells were abandoned, and beyond serving as a guide for future work, nothing resulted from this expenditure of money.

It was not until the nineties that this field began to attract more than ordinary attention, and until the Standard quietly came in and began acquiring territory Kentucky and Tennessee were not regarded in a very favorable light by Northern and Eastern operators, and until it was made known that the Standard contemplated the construction of a pipe line to give an outlet for the oil production, this class of operators, as a rule, took no part in the field work beyond acquiring leases.

During the past five years fully 900 wells have been drilled in different parts of Kentucky, and of these, probably half failed to produce oil. But next to knowing where to drill for oil, the next best thing for operators is knowing where not to drill for it, and while some sections of the State have been shown up in a favorable light by recent work, others have been abandoned after the initial attempts. But an oil field is not made in a year, nor in ten years, and it is possible that the future big oil-producing fields of this region may be located in sections where the first wells to be drilled failed to show the oleaginous fluid. Such is the history of the Pennsylvania field, and it is also true

of the West Virginia field that the best-producing developments were not revealed until long after the marketing of oil had been carried on. Thus the practical operators who are now coming in are taking up land without regard to its situation with respect to present oil-producing territory. The drilling of leases is becoming to be regarded more and more as a business proposition, and the days of overcapitalized concerns are past.

Last month the Kentucky and Tennessee field produced 47,406 barrels of oil, an insignificant output compared with that of older fields, but it must be remembered that this field is in its first stages of development, and the oil is from a comparatively small number of wells. Last week the runs amounted to 12,184 barrels. From all indications the runs of the current month will largely exceed those of the previous month, and it is probable there will be a constant increase from now on as the result of the increasing number of new wells being brought in.

No section of the State at present may be said to be the center of work. In the lower portion of Kentucky there are a larger number of wells drilling and a larger number of producers. However, the upper developments have lately been advancing with rapid strides, and promise much for the future. In the eastern section of the State the Standard is doing a great deal of work in the development of the Floyd-Knott field, while all over the mountainous section of the State there is considerable drilling. Work in the Tennessee division is progressing slowly, but there is beginning to be manifested a renewed interest in the work in that section. During the past month a number of new wells have been commenced.

In the lower fields the runs in some districts show a falling off and in others a gain. In the Knox county division some of the wells have suddenly increased in capacity. Last week a number of fair wells were finished up there, and in the Richland section there are eight rigs at work. Deep drilling in that county continues to attract attention. Canadian capitalists have organized the Seven Stars Oil Co. to operate in Knox county, and the initial work will soon be under way. Two rigs have been ordered to be put to work. The Majestic Oil Co., a new concern composed of Washington and New York people, has begun work in the adjoining territory of Whitley county. In all other counties constituting the lower development there is the same activity. A 100-barrel well just brought in in the Wayne county division is causing a great deal of talk. There were three other completions in that county last week, with an average capacity of fifteen barrels each. The Standard continues to push the work in Cumberland county.

The drilling in the upper fields is being carried on mostly by local companies. Last week five wells were finished up in the Bath-Rowan field. The Moorehead Oil Co. got a good gasser. It is reported that the Standard, which controls the output of that division, will drill a well to the depth of 2500 feet as a test. The St. Louis Oil & Gas Co. will also probably drill a deep hole in the Embury district. In the eastern division there have been no completions for the past few days. Pauley & Williams have rented seven wells from Guffey and Galey north of the Floyd-Knott border, and will also drill some new holes. This section of the Kentucky oil field does not produce a large amount of oil, but it is the highest-priced product in the State, commanding \$1.35 on the market.

A revival is taking place in the Barren county district, and some Eastern capitalists are preparing to go to work immedi-

ately. A large number of wells have been drilled in Barren county.

Probably the principal cause for the revival in work, next to having a market for the output, is the advance in the prices of petroleum. With oil commanding \$1.35 and \$1.27 per barrel the operators can afford to invest more in the development of their leases than formerly, when the prices ranged from sixty-three cents to ninety cents per barrel. The grade of oil known as South Lima and Indiana commands \$1.27 per barrel, and it is claimed the Kentucky and Tennessee product is even of a higher quality than that grade. It is even reported that oil from this field will command Pennsylvania prices, but this is hardly probable. The Whitehouse oil, or the product of the Eastern Kentucky field, commands the highest price paid for any Western oil, \$1.35 per barrel, and it is possible the oil from the lower fields may be advanced from \$1.27 to \$1.35 per barrel. The latest advance placed two cents more on the lower oil, while the price of the Whitehouse grade remained stationary. The Ragland production is quoted at sixty-six cents per barrel, and there is little chance for an advance in the price of that grade of petroleum. It is used more as a lubricant, and is used to a great extent on the pikes of central Kentucky.

Last week the Tennessee division made a slight amount of oil, it coming from the Bob's Bar development. During the past few months there have been few producers finished up in Tennessee, and the old wells are turning out very little oil. During the past seven days there has been but one completion, and it is regarded as a duster. The Murray Oil Co. has started another well, and the Interstate Petroleum Co., which is interested in the Kentucky fields, is also drilling. Very little wildcatting has ever been carried on in Tennessee, the operators confining themselves as much as possible to the developed sections. W. S. HUDSON.

TEXAS OIL SHIPMENTS.

Large Quantities Moving by Rail and by Water.

[Special Cor. Manufacturers' Record.]
Beaumont, Texas, November 14.

The first cargo of Texas petroleum consigned by the Security Oil Co. to the Standard Oil Co. at London, England, was shipped November 2 from Sabine Pass on the tank steamer Lackawanna, and consisted of 33,333 barrels of gas oil. The Security refinery is turning out a large amount of gas oil, all of which to date, excepting the Lackawanna's cargo, has gone to New York.

A full cargo of kerosene, refined from Beaumont and Sour Lake oils at the Gulf refineries, is being loaded on the Shell Transport & Trading Co.'s tanker Pinna at the Guffey dock, Port Arthur, for export to London. The Pinna's capacity is 55,000 barrels. She will sail this week, and will be followed in about ten days by the Shell tanker Pectan, now on the way to Port Arthur to load a cargo of desulphurized oil at the Guffey dock for London.

Shipments of Texas oil by water from Port Arthur and Sabine Pass during the ten days from November 2 to 11, inclusive, amounted to 277,816 barrels. Of this amount, the Texas Company and Security Oil Co. loaded 99,857 barrels, including the Lackawanna's cargo, for the Standard Oil Co., and the J. M. Guffey Petroleum Co. loaded 22,619 barrels for the same company.

During the ten days the total amount loaded by the Guffey Company was 177,959 barrels. These shipments were about evenly divided between New York, Philadelphia and New Orleans. They were

made up of 122,160 barrels of crude, 51,802 barrels of solar oil, 2170 barrels of gasoline and 1827 barrels of lubricating oil, the refined oils being from the Gulf refineries.

While there has been a falling off in shipments by water this month, the rail shipments from Sour Lake and Beaumont are holding up to the October average. The average of rail shipments from Sour Lake during the first ten days of November was five cars less per day than in October, when the average was seventy-six cars per day. This decrease at Sour Lake, however, was offset by the revival of shipments from the Higgins rack at Beaumont, this oil having been brought over from Sour Lake in cars and run into the tanks. From ten to twelve cars a day have been loaded at this rack since the first of the month. Shipments from Gladys (Spindle Top) by rail are down to two or three cars a day.

In October the movement of oil by rail from Sour Lake over the Southern Pacific—the only line into Sour Lake—amounted to 2356 cars, or at the rate of seventy-six cars a day. As most of the Southern Pacific system cars are of 300 barrels capacity, it is reasonable to estimate the average car capacity at 250 barrels. This would make the total movement of Sour Lake oil by rail during October 589,000 barrels, or at the rate of 19,000 barrels a day.

During the first ten days of November the rail shipments from Sour Lake amounted to 713 cars, or at the rate of seventy-one cars a day. Using the same average car capacity as that applied to October shipments would make the quantity 178,250 barrels, or at the rate of 17,825 barrels a day.

Oil prices at Sour Lake and Beaumont have stiffened sharply in the last two weeks. At Sour Lake a contract was closed on the 12th inst. for the production of one of the flowing wells for a period of twenty days at forty cents a barrel. This is better by ten cents a barrel than the price prevailing two weeks ago. At Beaumont large lots of oil in tanks are bringing forty-five cents and better. The Texas Company on the 9th inst. posted a new price of forty-five cents on Beaumont and thirty-five cents on Sour Lake oil. Declining production at Sour Lake is given as the cause of the advance. This decline is not due to the playing out of the oil supply, but rather to the failure of compressed air to longer raise the oil successfully in many of the wells. An official of one of the large companies predicts that in another month the field will be a pumping proposition throughout, with few, if any, wells flowing or working with air.

Contracts are being made for the delivery of oil on board vessels at Port Arthur in January at sixty cents. It is confidently expected that unless an important strike is made and new production secured the price will be fifty cents or better at Sour Lake before the first of the year.

A sale of 75,000 barrels of oil in tanks at Beaumont at fifty cents a barrel was made this week by the Lone Acre Oil Co. to the Security Oil Co.

There have been no new developments at Batson's Prairie. The Paraffine Oil Co., on whose property the strike was made, is sinking its second well. The Guffey (H. A. Phillips) No. 1, on the Phillips lease, adjoining the Paraffine Company's property, is down 320 feet, with two good showings of oil. Work on the No. 2 well on this lease will begin shortly.

HOLLAND S. REAVIS.

The British steamer Anglo-Saxon has been loading 20,000 bales of cotton at Wilmington, N. C., during the past week.

SOUR LAKE'S RISE.

Changes Produced in the Texas Town in Six Months.

Illustrative of conditions induced by the oil development in Texas are some facts furnished the Beaumont Journal by Col. George A. Hill regarding the recent developments at Sour Lake, in which field during the past six months it is estimated that between 6,000,000 and 8,000,000 barrels of oil have been produced. Six months ago, Colonel Hill says, Sour Lake had not more than fifteen old shacks and one or two creditable houses. The situation there now is thus set forth:

Seven hundred and ninety-eight houses, valued at \$500,000; 1257 tents, valued at \$125,700; 9 lumber yards, valued at \$90,000; 4 livery stables, valued at \$32,000; 7 machine shops, valued at \$105,000; 131 stores, valued at \$150,000; 7 blacksmith shops, valued at \$10,000; 4 wheelwright shops, valued at \$2000; 6 hardware and implement houses, valued at \$40,000; 56 saloons, valued at \$56,000; 9 markets, valued at \$4500; 1 newspaper and job office, valued at \$5000; 2 laundries, valued at \$8000; 49 stables and stock corals, valued at \$98,000; 51 restaurants, valued at \$10,000; 7 barber shops, valued at \$3500; 2 schools, valued at \$1000; 1 church, valued at \$500; 2 bakeries, valued at \$1500; 1 bank, with capital of \$65,000; 346 wells, valued at \$1,384,000; 147 pumping rigs, valued at \$220,500; 91 drilling rigs, valued at \$182,000; 30 water wells, valued at \$15,000; 229 boilers, valued at \$68,700; 39 power and pumping plants, valued at \$390,000; 29 large iron tanks for storage, valued at \$290,000; 144 galvanized-iron tanks, valued at \$57,600; 275 wooden storage and measuring tanks, valued at \$110,400; 48 earthen storage tanks, valued at \$288,000; 4 pipe lines to Beaumont, valued at \$400,000; pumping plants for same, valued at \$80,000; 33 pipe lines to earthen and storage tanks, valued at \$198,000; 6 loading racks for pipe line, valued at \$48,000; 1 pipe line to Raywood, valued at \$75,000; 1 pipe line to Saratoga, valued at \$60,000; 4 telephone lines to Beaumont, valued at \$25,000; 6 loading racks, valued at \$20,000; 9 factories, valued at \$25,000; 4 saw-mills, valued at \$30,000; 5 dairies, valued at \$15,000; 2 electric-light plants, valued at \$50,000; 1 water-works plant, valued at \$25,000; 1 opera-house, valued at \$10,000; 31 hotels, valued at \$125,000; 54 boarding-houses, valued at \$108,000; 1 hospital, valued at \$5000; 122 offices, valued at \$15,000; 2 cold-storage plants, valued at \$10,000; 1 bowling alley, valued at \$2000; 1 theater, valued at \$1000; 1 United States postoffice, valued at \$1000; 900,000 barrels oil in storage, valued at \$270,000; horses, wagons, household outfits, implements, etc., valued at \$325,000; 8 miles Southern Pacific Railroad track, valued at \$100,000; 15 miles Southern Pacific sidings, valued at \$170,000; 2 depots and express offices, etc., valued at \$5000; 2 telegraph offices and property, valued at \$10,000; Beaumont & Sour Lake Electric Railroad, 20 miles, and property now being built, valued at \$250,000; grand total, \$6,821,700.

In and Near Pinebluff.

Editor Manufacturers' Record:

Your old correspondent would respectfully report that yesterday some noted Northern physicians, philanthropists and manufacturers met here on invitation with some property-owners and local professional gentlemen to consider the subject of establishing several industries and a large sanitarium about three miles from here. It would assuredly be impossible to find either a climate or location in the wide world so well adapted for the natur-

ally health-giving characteristics required for such an institution as that selected yesterday by the gentlemen who freely offer to give the matter their personal care and support. Nobody visits this atmosphere but is revived in body and soul, for the God of Nature has certainly endowed it with health-giving properties. Pure crystal waters come readily from natural springs and deep wells filter through an average of fifty feet of pure white sand soil for some twenty square miles around about. The air is soft and balmy through this long pine section.

Whilst there are a few merchants and industries, there are large and generous opportunities for others. Labor is abundant and economic, and the incentive to activity comes from the nature of the soil and atmosphere, which produces health to all. There exist openings for all kinds of furniture and other woodwork, for buildings are being freely extended, and if there were cotton, boot and shoe and other factories established the various railroad facilities are good for reaching markets at all points, whilst the local demand grows. In anticipation of manufacturers settling here, some of the local property-owners have and will build large factories for lease to meet any demand. There are banking facilities near by, and the merchants supply the home need, yet a good strong national bank or trust company would pay for the undertaking. Several thousand persons from all Northern States make this section their home between October and June to escape the rigors of winter, to rest from labors and regain health.

There are a few good hotels and apartment-houses, etc., here, and it would pay the Northern hotel man to also establish new and larger concerns here. The old winter residents are coming back freely, but there is ample room and opportunities for many more.

S. R. M.

Pinebluff, N. C., November 5.

Opportunities at Hope.

[Special Cor. Manufacturers' Record.]
Hope, Ark., November 13.

The St. Louis & San Francisco Railway has completed tracklaying into Hope. This gives us three large systems of railway, the others being the Missouri Pacific or St. Louis, Iron Mountain & Southern Railway, running eight mail and passenger trains in and out of St. Louis daily through Hope, connecting its great system of railways in the West and South, and the Louisiana & Arkansas Railway, which was extended to Hope recently from Louisiana, and is now fast extending its line to a connection with New Orleans. We have a fourth line, which, however, extends only twenty-six miles north, but believe it will be extended to Kansas connections through Fort Smith, Ark., and south to Shreveport, La.

Hope now has 3000 inhabitants, excellent water and climate, with varied soils for general farming, truck farming and fruit growing; in fact, this is the home of the Elberta peach. The high, dry sand hills in one direction, not over three miles from Hope, produce the very finest peaches, berries, melons, etc.

Our town is on one of the highest points between Texarkana, Texas, and Poplar Bluff, Mo., being about ninety-two feet higher than the city of Little Rock.

We have handle and spoke factories, ice plant, planing mill, foundry, water, light and other plants, all making money, and there is room for the following factories: Furniture, wagon, singletree, breaststake, desk, wheelbarrow, hoop and many other hardwood, also canning, cider, broom, mattress and other factories of this nature. There is no better location in the South for a cotton mill. There are

many good investments in Hope. There is not a vacant house in town.

There is only one hotel here, and if \$20,000 to \$25,000 were invested in a brick block, to be used, first floor for business houses, second and third of modern design for hotel, it would prove to be a big interest payer.

A. P. DYKE.

The Iron and Metal Trades.

In its review of the week the Iron Age says:

"Some of the makers of Southern iron continue in the course which they have pursued for some time, and \$9.25 for No. 2 foundry, Birmingham, is now freely done, with unconfirmed reports of even lower figures. One point is worthy of being noticed: Buyers, naturally critical in such a market, are demanding guarantees as to silicon contents, which the greater part of the Southern iron, although fully up to grade as to fracture, cannot meet. The result is that founders must turn to corresponding though higher-priced Northern irons. During the week there have been several large sales, one being a lot of 10,000 tons purchased by a leading firm of merchants to meet urgent requirements of customers. Nearly all the business being done is for prompt delivery, and serious negotiations for 1904 delivery have not yet begun.

"Producers who are thoroughly well informed concerning what has been done thus far in the direction of an export of Southern iron state positively that thus far only two lots of 500 tons each have been actually shipped."

For a Pasteurizing Plant.

Investigations have been afoot as to the feasibility of establishing at Mobile a \$200,000 dairy farm and pasteurizing plant. Should the plan materialize, it is proposed to erect up-to-date barns, sanitary in every respect, in which to house the cattle, to pasteurize the milk by the most improved method and to deliver it in sealed jars, direct to the consumer or through dealers.

To Paper Manufacturers.

Manufacturers who are prepared to make wrapping paper from cotton cloth are advised to address the Hitt Salvage Co., Atlanta, Ga. This company has from 15,000 to 50,000 pounds of redried damaged cotton cloth, much of the fiber sound, which it desires to have made into wrapping paper.

Louisiana Property Values.

The assessed valuation of property in Louisiana for 1903 is \$336,118,348, an increase over 1902 of \$20,534,880. More than a third of the increase, \$6,893,432, was in Orleans parish, in which lies the city of New Orleans, and the next largest increase, \$1,711,050, was in Calcasieu parish.

Coal in Arkansas.

The report of M. Rolfer, State mining inspector of Arkansas, shows that the output of coal in the State during the year ended June 30, 1903, was 2,009,018 tons. This was a falling off from the 1902 output, due to the inability to obtain cars to carry the coal.

At a conference of Governor W. W. Heard and representatives of the cotton interests of Louisiana it was determined to hold at New Orleans on November 30 a convention to discuss the boll-weevil situation, and in that connection the advisability of a special session of the legislature.

The Kanawha Lumber Manufacturers' Club has been organized at Charleston, W. Va., with C. L. Winter, president, and C. W. Young, secretary.

NEW MEN IN SEABOARD.

Thomas F. Ryan, Blair & Co., T. J. Coolidge, Jr., and Nathaniel Thayer Now Directors.

Negotiations have just been completed in New York by which the Seaboard Air Line will be furnished all the money necessary (an amount estimated from \$3,500,000 to \$5,000,000) to complete the Birmingham & Atlanta extension and to liquidate its floating debt. This money will be furnished through Messrs. Blair & Co. and Mr. Thomas F. Ryan of New York and T. Jefferson Coolidge, Jr., of Boston, and consequently Mr. Ryan, Mr. John A. Blair and Mr. Coolidge, the latter representing the Old Colony Trust Co., become members of the Seaboard board of directors, having just been elected thereto. This brings into the Seaboard the strongest financial combination that has ever been associated with it, including as it does some of the strongest financial interests in the United States.

A striking feature of this transaction is that it marks the establishment of harmonious relations between the Williams and Middendorf interests on one side and Mr. Ryan on the other, who several years ago were engaged in a vigorous warfare for the control of the Seaboard system, Mr. Ryan at that time being a large stockholder in the Seaboard & Roanoke Railroad, the parent company. Harmony between these two conflicting elements is now fully restored, and it is understood that Mr. Ryan consented to take part in the necessary financial arrangements after he had stipulated as one of the conditions that President Williams should remain at the head of the company. The result of this will be enlarged possibilities for the Seaboard, the preservation of the status quo in the railway situation of the South, and the continuation of Mr. John Skelton Williams as president of the Seaboard.

The new board of directors is composed as follows: John Skelton Williams, Richmond, Va.; Thomas F. Ryan and John A. Blair, New York; J. William Middendorf and S. Davies Warfield, Baltimore; James H. Dooley, Richmond, Va.; C. Sidney Shepard, New Haven, Conn.; J. M. Barr, Norfolk, Va.; Ernst Thalmann and B. F. Yoakum, New York; H. Clay Pierce, St. Louis, Mo.; Oakleigh Thorne, New York; Norman B. Ream, Chicago; T. Jefferson Coolidge, Jr., and Nathaniel Thayer, Boston.

It will be observed that this new deal preserves the representation of the St. Louis & San Francisco interests in the board with about an equal representation for each of the three elements concerned, namely, Messrs. Williams and Middendorf and their friends, Messrs. Blair & Co., Ryan and Coolidge and Ladenburg, Thalmann & Co.

The announcement of these negotiations had the immediate effect of advancing the market value of Seaboard stocks and the 4 per cent. bonds, and the general feeling in financial circles is that the deal is most advantageous to the company.

President Williams' Comments.

President John Skelton Williams of the Seaboard, after the meeting, said:

"The proposition made by Mr. S. Davies Warfield, president of the Continental Trust Co. of Baltimore, Md., on behalf of Mr. Thomas F. Ryan, Messrs. Blair & Co. and the Old Colony Trust Co. of Boston, and presented by him to our directors, has been unanimously accepted, and has received in the election of a board of directors satisfaction to all the interests concerned.

"The entrance into the management of the company of Mr. Thomas F. Ryan, Messrs. Blair & Co. and the Old Colony

Trust Co. of Boston, in conjunction with Ladenburg, Thalmann & Co. and their associates, marks a new era in Seaboard affairs, and will place this company in an enviable position both as to financial support and able, vigorous direction.

"In connection with the negotiations leading up to the successful conclusion reached today Mr. Warfield has played a most important part. I think it is due to him to say that he has rapidly and successfully accomplished the most important piece of work of this kind that has been done in years, so far as my knowledge goes. It was Mr. Warfield who first saw Mr. Ryan, entirely without my knowledge, and who afterward brought Mr. Ryan and myself into negotiations, with the successful results which have just been accomplished. Mr. Warfield performed a great service to the city of Baltimore and the South, and I am glad that he will take his old place on our board of directors, our executive committee and on the voting trust.

"The financial arrangements which the Seaboard Air Line Railway has just perfected provide, among other things, for the amount required by the company to fully complete its line from Atlanta to Birmingham.

"At the time of the formation of the syndicate of which Messrs. Ladenburg, Thalmann & Co. are managers the Seaboard obligated itself to furnish out of its treasury, in addition to the proceeds of the sale of the \$6,000,000 bonds on the Atlanta & Birmingham division, an amount sufficient to complete this extension, and this has now been done."

Statement by Mr. Warfield.

Mr. S. Davies Warfield gave out the following statement:

"There is little to add to what has been announced. I feel that the success of the Seaboard Air Line would be immensely increased by alliances which would bring the best and strongest financial support to the road, in connection with broad and conservative management. Recognizing that this would be largely accomplished by enlisting the active interest of Mr. Thomas F. Ryan in the property, I saw that gentleman several weeks ago and discussed the subject with him. He expressed himself as willing to take up and discuss the matter, provided that the plan would have the cordial support and co-operation of President Williams.

"He said that he recognized the great work Mr. Williams had done for the South in the upbuilding of the Seaboard Air Line system and in bringing that property to its present state of prosperity. He said distinctly that, although the Seaboard was an interesting subject to him, he should not care to consider any proposition in connection with it unless it was agreeable to Mr. Williams, and with a view to co-operation with him in the property.

"I then saw Mr. Williams, who, realizing the benefit which would result from it to the interests which he represented, his friends and the Seaboard generally by such an alliance, promptly gave his cordial approval to my suggestions in this connection, and expressed not only a willingness but a desire to have Mr. Ryan and his friends largely interested in the Seaboard Air Line and its management.

"Mr. Ryan associated Messrs. Blair & Co. with him, and an agreement was reached. In order that all interests should work in harmony Messrs. Ladenburg, Thalmann & Co. and Mr. L. Jefferson Coolidge, Jr., who had made an offer of a loan to the company, were conferred with, and as a result a proposition was agreed to which I had the pleasure of submitting to the board of directors of the company and which has just been unanimously approved."

RAILROADS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

CAROLINA & TENNESSEE.

The Southern Railway's New Line Now Being Constructed.

Information received by the Manufacturers' Record from an official of the Southern Railway Co. confirms previous reports about the work being done on the line from Bushnell, N. C., westward into Tennessee along the north bank of the Tennessee river. This construction is being done by W. J. Oliver of Knoxville, Tenn. The line starts at Bushnell, and for twenty-five miles west to the Tennessee boundary is called the Carolina & Tennessee Southern Railroad, and west of the boundary it runs for twenty miles to Citico creek as the Tennessee & Carolina Southern Railway. All the way from Bushnell the railroad follows the Tennessee river.

According to reports from Tennessee, it is the purpose of the Southern Railway to connect this new road with its present line at or near Maryville, Tenn., and this would make a direct connection between its line in the southwestern part of North Carolina and that portion of the system lying in Eastern Tennessee. Furthermore, it is to be noted that the rumored plan of the Southern is to build a further extension from its line in North Carolina, branching off a few miles south of Bushnell and following the valley of the Little Tennessee river southeast about twenty miles to Franklin, N. C., the county-seat of Macon county, towards which point the Tallulah Falls Railway is working northward from its present terminus through Rabun county, Georgia, and via Rabun Gap. The linking up of these lines would place the Southern in a position to establish a through route from the coal regions of Eastern Tennessee to tidewater. Although the building of these links would give an immediate connection through to Charleston, S. C., and Savannah, Ga., it would be possible to make almost an air-line route by constructing two short pieces of road, one about thirty miles long between Edgefield and Greenwood, S. C., and another between Walhalla, S. C., and Clayton, Ga., about twenty-five miles, the latter point being on the extension of the Tallulah Falls Railway, while Walhalla is the western terminus of the Blue Ridge Railway, a feeder of the Southern.

The "Orient" in Mexico.

"Port Stilwell and Mexico." This is the title of a neatly-printed and handsomely-illustrated pamphlet describing the country traversed by the Kansas City, Mexico & Orient Railway in Mexico. It is issued by the United States & Mexican Trust Co. of Kansas City, and presents in convenient form much valuable information about the country and the railroad. The line has been surveyed all the way from Kansas City to Topolobampo or Port Stilwell, and about 800 miles, or one-half the distance, is graded. Parts of the line are also in operation—one section in Kansas and Oklahoma, another in the interior of Mexico and another from Port Stilwell eastward.

This new railroad, which will provide a short line to the Pacific coast, will cross the great agricultural-country region of Kansas and Oklahoma and also the cattle-raising country from Kansas through Oklahoma into Texas. It will also go through extensive coal fields in Kansas, besides other mineral-land and oil country.

When the road enters Mexico it strikes a fine cattle-raising country in Chihuahua,

and also goes through the famous mineral region of the same State. Through the mountains west of the city of Chihuahua are forests of valuable timber, besides much mining territory. On the western side of the range is another fine agricultural country. The harbor at Port Stilwell on Topolobampo bay is described by a naval officer as being easy of access, in addition to being secure and possessing advantages for the establishment of an important city.

Work on the construction of the road is being pushed, and the booklet may be consulted with profit for data concerning the Mexican regions which it will develop.

WELLSBURG & STATE LINE.

A Railroad to Open Up Coal Lands on the Pittsburg Vein.

Mr. Joseph A. West, president of the Wellsburg & State Line Railroad Co., writes from Pittsburg, Pa., to the Manufacturers' Record as follows:

"The Wellsburg & State Line Railroad Co., chartered under the laws of the State of West Virginia, will extend when completed from Wellsburg, W. Va., to a point on the State line (Dunnsforth), a distance of about twelve miles, where it will connect with the Washington & State Line Railroad, charter for which has been taken out under the laws of the State of Pennsylvania, and the road will run from the State line to Little Washington, a distance of about fifteen miles, making the total length of the road about twenty-seven miles.

"To date about two and one-half miles of the road, reaching from Wellsburg, W. Va., to the mouth of what is known as Titts run, is practically completed, all grading having been done and the bed ready for the ties and rails, which are on the ground. We should be able to complete this span in about thirty or forty days.

"The directors and owners of the above railroad company also own the Wellsburg Coal Co., with an acreage of about 1000 of the celebrated Pittsburg vein, the mine and tipple being located at the aforesaid Titts run, and possibly about the first of the year we hope to be in shape to haul our coal to Wellsburg, where the Wellsburg and State Line Railroad will connect with the Pennsylvania Railroad. Work on the balance of the road from Titts run to Little Washington will be pushed along as rapidly as possible."

Nashville, Columbia & Gallatin.

According to advices from Nashville, Tenn., concerning the recent electric railway deal, the name adopted for the new company which is to connect Nashville with Gallatin on the north and Columbia on the south is the Nashville, Columbia & Gallatin Electric Railway Co. It will retain the charter of the original companies, and will file amendments to increase the capital to \$3,000,000.

Thomas E. Perry, Jr., and H. A. Gross of Pittsburg, as heretofore reported, recently purchased the interests of C. W. Ruth and Frank Haskell in the Nashville & Gallatin Interurban Railway Co. and the Nashville & Columbia Interurban Railway Co. This, it is stated, amounted to nearly two-thirds of the capital stock. To carry out the consolidation the Nashville & Gallatin Company sold its property to the Nashville & Columbia Company, but the name previously selected for the consolidation, the Tennessee Interurban Railway Co., was abandoned and a new name selected, as stated.

The officers of the Nashville, Columbia & Gallatin Electric Railway Co. are Thos. E. Perry, Jr., president; H. A. Gross, vice-president, secretary and treasurer; E. J. Kent, chief counsel; J. H. Connor, gen-

eral manager; directors, Thos. E. Perry, Jr., H. A. Gross and L. H. Johnson of Pittsburg, Pa.; J. H. Connor, J. P. Fulcher, J. H. McMillin, R. P. Webb and H. E. Howse of Nashville, Tenn., and W. J. Whitthorne of Columbia, Tenn. It is expected that the lines will be built and equipped within a year.

IMPORTANT DEVELOPMENT.

Glen Easton Coal & Coke Co. to Ship Coal by Rail and Water.

The Glen Easton Coal & Coke Co., 407 Keystone Bank Building, Pittsburg, Pa., informs the Manufacturers' Record that it proposes to build a double-track railroad from Moundsville, W. Va., to Wheeling, eleven miles, to connect with the Wheeling & Lake Erie Railway of the Wabash system. It also proposes to ultimately extend the line southeast from Moundsville about ten miles to Glen Easton, and thence continuing southeast about thirty miles further to Farmington and the Fairmont coal fields, where coal lands are owned by the interests that control the Glen Easton Company. Engineers are now making a final survey for the railroad, the engineer in charge being Ernest Breisch at Moundsville.

It is further stated that rapid progress is being made on the plant of the Glen Easton Coal Co. at Moundsville, and No. 1 shaft is expected to reach the Pittsburg coal vein by December 1. There will also be plants 2, 3, 4 and 5. On the Ohio river just below Moundsville the company proposes to erect large coal tipples for the shipment of coal by river to Cincinnati, Louisville, Memphis and New Orleans. Negotiations are in progress for two large towboats and fifty barges. Allen B. Creighton of Moundsville is named as the attorney for the company in Marshall county, and general offices are to be opened there next spring.

Kelly's Creek & Northwestern.

Mr. J. W. Dawson, general manager of the Kelly's Creek & Northwestern Railroad, in a letter from Cedar Grove, W. Va., to the Manufacturers' Record describes the incorporation of the company and its progress as follows:

"Our road was chartered under the laws of West Virginia early this spring, to be constructed standard gauge, steam power, from Cedar Grove, W. Va., a point on the Kanawha & Michigan Railway in Kanawha county, up the valley of Kelly's creek, and thence by the most practical route to Sutton, W. Va., in Braxton county, a distance of about forty-five miles. About four miles have been completed and put in operation, but no additional grading will be done this winter. However, we expect to resume the construction of the line next spring. The principal traffic is coal and forest products. The officers are F. M. Staunton, president, Charleston, W. Va.; Charles W. Ward, vice-president, Queens, N. Y.; H. B. Smith, secretary, Charleston, W. Va. All communications relative to the company should be addressed to J. W. Dawson, General manager, Cedar Grove, W. Va."

The First Pullman Sleepers.

Col. Roswell Eaton Goodell, who died recently at Denver, Col., at the age of seventy-seven years, was the first man to make a contract with the late George M. Pullman for sleeping cars. Colonel Goodell was at that time (in the fifties) superintendent of the Chicago & Alton Railroad, and Mr. Pullman was one of three manufacturers of sleeping cars submitting patterns for construction. After selecting the Pullman pattern two passenger coaches belonging to the railroad company

were converted into sleeping cars, making the first Pullmans ever constructed. Thus it happened that the Alton earned the distinction of being the pioneer sleeping-car line. Under this first contract the Chicago & Alton was to furnish the cars and keep the outside of them in condition, and Mr. Pullman was to furnish and keep up the inside.

What President Stevens Said.

President George W. Stevens of the Chesapeake & Ohio Railway, in a letter from Richmond, Va., to the Manufacturers' Record, denies the report from Pittsburg that he has under consideration a plan to connect the Greenbrier branch of the Chesapeake & Ohio with the Pittsburg & Lake Erie Railway. Mr. Stevens says that he was misquoted, and that what he did say was "that it is practicable to connect the Monongahela Railroad with the Greenbrier branch of the Chesapeake & Ohio Railway." He further says: "If a connection is built, it would be an extension of the Monongahela Railroad south. The Chesapeake & Ohio Railway will not be extended north of Durbin."

Royal Blue Book.

The Book of the Royal Blue for November, published by the Baltimore & Ohio Railroad Co., although described as a sportsmen's number, keeps its information for sportsmen in the background, it being contained upon the concluding pages of the magazine. The preceding articles are devoted to the Louisiana Purchase Exposition; Winchester, Va.; Zanesville, Ohio, and Blennerhassett's Island, all being beautifully illustrated. The latter article presents the true history of that noted isle in the Ohio river about which the halo of romance has clung for a century. The Winchester article describes and pictures a number of the historic places in the town.

Beaumont & Sour Lake.

Mr. R. C. Welles, general manager of the Beaumont & Sour Lake Construction Co., writes from Beaumont, Texas, to the Manufacturers' Record that the line from Beaumont to Sour Lake, twenty and one-half miles, is to be completed, with track laid, by the end of December, and by that time it is also expected that contracts will have been let for the balance of the system, including twelve miles from Beaumont to Saratoga and eighteen and one-half miles from Beaumont to Port Arthur. This will make a total of fifty-one miles of track when all is completed next year.

After Coal and Lumber.

According to a report from Louisville, Ky., S. C. Bond of DuBois & Bond Bros. of near Bloomington, Md., and J. Henry Beadle of Pennsylvania are principal owners of the Rockcastle Mining, Lumber & Ore Co. of Jackson county, Kentucky, which owns 25,000 acres of mineral and timber land, and which proposes to build about twenty-five miles of railroad. It is estimated that there are 200,000,000 feet of marketable lumber in the tract and 100,000,000 tons of coal. The railroad will, it is stated, cost about \$200,000.

Baltimore & Belair.

Construction is about to begin on the Baltimore & Belair Electric Railway, which will extend from Hamilton, in the suburbs of Baltimore, to Belair, Md., about eighteen miles. Connection will be made at Hamilton with the electric railways of Baltimore city. The contract for the first four miles of line has been let to William E. Anderson of Baltimore. This

will cover the line from Hamilton to Carney. Vandevanter & Hood, 920 Equitable Building, Baltimore, are engineers in charge of the work.

Teche Electric Railroad.

Concerning the proposed Teche Electric Railroad Mr. F. F. Myles, 100 Common street, New Orleans, La., informs the Manufacturers' Record as follows:

"We expect to build fifty-five miles of road from New Iberia along the banks of the Bayou Teche to Berwick City, opposite Morgan City. This line will serve a population of about 60,000 people. The country is very fertile. I anticipate to get to work on it during the next year and complete it at an early date."

The Southern's Second Track.

The double-tracking on the Southern Railway between Alexandria and Manassas, Va., twenty-six miles, is to be finished this month by the contractors, the Lane Bros. Company & Jones of Esmont, Va. W. J. Oliver of Knoxville, Tenn., is the contractor for the next section of double-tracking from Manassas to Orange, Va., fifty-two miles, and an officer of the Southern Railway informs the Manufacturers' Record that the grading for this will be completed early next year.

Dalton & Alaculsky.

President M. S. Squires of the Dalton & Alaculsky Railroad Co. of Dalton, Ga., writes from Binghamton, N. Y., to the Manufacturers' Record saying that the road is entirely graded from Dalton, Ga., where it connects with the Southern Railway and the Western & Atlantic Railroad, to Crandall, in Murray county, a distance of twenty miles from Dalton. Practically all the ties are delivered along the line, and the company expects to have the road in operation next spring.

St. Louis, El Reno & Western.

Mr. H. A. Genung, chief engineer of the St. Louis, El Reno & Western Railway Co., writes from El Reno, O. T., to the Manufacturers' Record saying that the line is graded from Guthrie to El Reno, forty-two miles, and that tracklaying has begun, it being proposed to lay one mile per day. It is desired to reach El Reno before January 1, the line, after leaving Guthrie, passing through the towns of Navina, Lockridge, Piedmont and Richland, all in Oklahoma.

Appointed.

The appointment of W. W. Hayden as chief engineer of the Mobile, Jackson & Kansas City Railroad is announced. He succeeds H. S. Jones, resigned. R. A. Christian, purchasing agent, has also resigned, and his duties have been assumed by F. E. Dewey, second vice-president and general manager.

Cane Belt Reported Sold.

Dispatches from St. Louis report that the Missouri, Kansas & Texas Railway has purchased the Cane Belt Railroad of Texas, which is ninety miles long from Sealy to Matagorda. The purchase price is said to have been \$1,600,000. The line connects with the Missouri, Kansas & Texas at Sealy.

Reported Deal Denied.

President J. P. Williams of the Georgia, Florida & Alabama Railway writes from Savannah, Ga., to the Manufacturers' Record saying that there is nothing in the report that his company has purchased the Carrabelle, Tallahassee & Gulf Railway.

Railroad Notes.

Mr. Ed L. Westbrooke, vice-president and general manager of the Jonesboro, Newport & Western Railroad, writes from Jonesboro, Ark., to the Manufacturers' Record saying: "We are now engaged in clearing right of way, and hope to have fifteen miles of our line in operation by the first of May."

By Rail or Water.—This excellent little publication, embodying facts of interest to travelers and importers, has again been revised by its publisher, Mr. Arthur W. Robson, general steamship and railroad passenger agent at Baltimore. It contains much valuable information, particularly with reference to foreign travel, and the pages are handsomely illustrated. Copies can be obtained from the publisher.

The Meehan-Rounds Lumber Co. writes from Chunkey's Station, Miss., to the Manufacturers' Record stating that the Tallahatta Railroad now has twelve miles of main line and four miles of branches, the main line running from Meehan Junction, on the Alabama & Vicksburg Railway, in a northwesterly direction. It is expected to continue building next year a few miles farther to Battlefield, Miss.

The Gulf & Ship Island Railroad Co. reports for September gross earnings \$161,589, increase as compared with the same month of last year \$26,805; operating expenses and taxes \$94,696, increase \$2370; net earnings \$66,893, increase \$24,345; surplus after paying fixed charges \$48,436, increase \$19,861. For the three months ended September 30 the gross earnings were \$467,174, an increase of \$63,971, and the surplus was \$129,189, an increase of \$36,186.

The property of the Charlottesville City & Suburban Railway Co. at Charlottesville, Va., has, according to a dispatch from there, been purchased by the bondholders. The deal, which represents a valuation of \$90,000, is subject to a lien securing \$25,000 of first-mortgage bonds and another for new material. The property includes railway tracks, sidings, ice plant, electric plant, leases, franchises and real estate. The purchasing committee, representing the bondholders, are R. H. Wood, C. J. Rixey and L. T. Hauckel of Charlottesville.

Ohio River Improvement.

The executive finance committee of the Ohio Valley Improvement Association is preparing to send broadcast throughout the Ohio valley a number of pamphlets on the subject of river improvement. The officers feel that the action of the convention at New Orleans in October has done much to strengthen the movement for the improvement of the Ohio river.

For Levee Protection.

Fifty landowners along the Chariton river in Missouri are seeking incorporation under the drainage district law of the State to permit them to protect by levees from 15,000 to 20,000 acres of land that is periodically devastated by floods. The land now sells at from \$15 to \$20 an acre, but protected from floods, it will be worth from \$100 to \$125.

"Counsels Fraught With Wisdom."

[Memphis Morning News.]

The Manufacturers' Record is the most comprehensive and intelligent observer of Southern industrial progress and one of its most effective promoters, and its counsels are always fraught with wisdom.

The South Atlantic Car & Manufacturing Co. at Waycross, Ga., has been given a contract to build 340 flat cars for the Atlantic & Birmingham Railroad.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Columbia (S. C.) Mills Reorganize.

Dispatches from Columbia, S. C., state that the plan for the reorganization of the Olympia, Granby and Richland Cotton Mills was approved November 14 at meetings of the stockholders by an almost unanimous vote. Three mortgages to secure bonds on the properties aggregating \$3,000,000 were authorized, executed and recorded. Of this amount, \$1,750,000 is for the Olympia, \$800,000 for the Granby and \$450,000 for the Richland company.

New boards of directors were formed, consisting of Messrs. Stephen A. Jenks of Pawtucket, R. I.; George A. Draper of Hopedale, Mass.; R. P. Snelling of Newton, Mass.; H. C. Fleitmann of New York city, Francis K. Carey of Baltimore, Lewis W. Parker of Greenville, S. C.; R. Goodwyn Rhett of Charleston, S. C., and W. B. Smith Whaley and W. M. H. Lyles of Columbia.

Mr. Parker was elected temporary president, Mr. Fleitmann as vice-president, and Messrs. Megles, Robert & Co., chartered accountants of New York, controllers. An executive committee was formed, consisting of Messrs. Parker, Carey and R. F. Herrick of Boston, who will supervise the distribution of bond issues among the creditors as soon as the various claims are audited.

Monarch Cotton Mills.

Extensive improvements costing \$200,000 have been completed by the Monarch Cotton Mills of Union, S. C., doubling the company's production. The company doubled the size of its mill building and installed 14,000 spindles with 350 looms, increasing complement to 28,000 spindles and 734 looms, manufacturing 64-64-5.15 goods. There are about 500 operatives employed. The building still has space to accommodate 12,000 spindles and 250 looms additional. These enlargements were mentioned several times previously in this column.

Textile Notes.

Patterson Manufacturing Co. of China Grove, N. C., has declared its usual semi-annual dividend of 5 per cent.

It is rumored that the Brogon Cotton Mills of Anderson, S. C., will increase capital stock from \$500,000 to \$1,000,000.

It is rumored that the Raleigh (N. C.) Cotton Mills will build a large addition. The company now has 14,496 ring spindles.

E. C. Osborne is reported by dispatches as to establish a hosiery knitting mill at Waco, Texas. It is stated that Mr. Osborne operates a similar mill in South Carolina.

Manetta Mills of Lando, S. C., is installing additional mule spindles, and will also install more looms. The company at present has 15,000 ring spindles and 400 looms.

Standard Knitting Mills, Knoxville, Tenn., has contracted for additional machinery in order to increase its output so that the urgent demand for production may be met.

It is proposed to organize company for establishing a cotton-rope and twine mill at Stilesboro, Ga., and information is wanted on the necessary machinery. The Mayor can be addressed.

At the meeting of the stockholders of the Ouachita Cotton Mills, Monroe, La., held on November 5 it was proposed instead of enlarging the plant to sell it. If the mill is sold it will probably be bought

by some of the larger stockholders and enlarged.

Pepperton Cotton Mills, Jackson, Ga., will arrange its plant to manufacture fancy goods, such as towels and similar products, instead of plain goods, as at present. There are 12,900 spindles and 360 looms in the plant.

The Witham Cotton Mills of Hartwell, Ga., will enlarge and improve its plant of 8500 spindles and 102 looms. A dyeing department will be added and 100 looms will be installed for manufacturing towels, checks, calicoes and similar product.

The Lily Mill & Power Co., reported last month as organized, etc., at Shelby, N. C., is planning the erection of its proposed cotton mill and the development of water-power. It is stated that \$200,000 will be invested. John F. Schenck is president.

Messrs. James Milmon, T. C. Waters and James E. Belcher have incorporated the Piedmont Knitting Mills at Atlanta, Ga., with capital stock of \$6000 and privilege of increasing to \$100,000. This company acquires and will enlarge a hosiery mill established by Mr. Milmon.

E. N. Clemence of Columbus, Ga., is endeavoring to organize company to build a cotton mill. He was formerly secretary and treasurer of the Eagle and Phenix Mills, and when he resigned last July it was announced that he intended to become interested in a new mill enterprise.

Baldwin Manufacturing Co., Baldwin, Md., reported in September, will erect a building two stories high, 50x150 feet, and install fifty looms, investing over \$50,000 for the entire plant. Product will be piece goods, curtains and couch covers in tapestry work. All the machinery has been purchased.

The Eagle and Phenix Mills of Columbus, Ga., has decided to increase the capacity of its woolen department 12 per cent. Contracts for additional machinery have been awarded to increase from a nine-set to a ten-set woolen equipment. The spindles, looms and other machines are now arriving and being placed in position. This company has been making woolen cloth, as well as cotton cloth, for many years.

Royal Bag & Yarn Manufacturing Co., Charleston, S. C., was mentioned two weeks ago as installing considerable additional machinery in its plant. The original buildings are large enough to accommodate the new equipment, which will about double the 5000 spindles and 200 bag looms. All the machinery and supplies necessary have been purchased, and the installation will be completed before December 1. The expenditure will amount to about \$70,000.

QUOTATIONS OF COTTON YARNS.

By Buckingham, Paulson & Co., New York, Philadelphia and Chicago, November 17.

No. 10s-1 and 12s-1 warps.....	17 1/2 @ 18 1/4
No. 14s-1 warps.....	19 @
No. 16s-1 warps.....	19 1/2 @
No. 20s-1 warps.....	20 @
No. 22s-1 warps.....	20 1/2 @
No. 28s-1 warps.....	21 @
No. 6s to 10s yarn.....	17 @ 17 1/2
No. 12s-1.....	17 1/2 @ 18
No. 14s-1.....	18 1/2 @
No. 16s-1.....	19 @ 19 1/2
No. 20s-1.....	20 @
No. 22s-1.....	21 @
No. 28s-1.....	21 @
No. 8s-2 ply soft yarn.....	17 1/2 @ 18
No. 10s-2 ply soft yarn.....	18 1/2 @
No. 8s-2 ply hard.....	17 1/2 @
No. 10s-2 ply hard.....	18 1/2 @
No. 12s-2 ply hard.....	19 @
No. 14s-2 ply.....	19 @
No. 16s-2 ply.....	20 @
No. 20s-2 ply.....	21 @
No. 22s-2 ply.....	22 @
No. 28s-2 ply.....	22 1/2 @
No. 30s-2 ply yarn.....	24 @
No. 40s-2 ply.....	28 @ 28 1/2
No. 8s-3, 4 and 5 ply.....	17 1/2 @
No. 20s-2 ply chain warps.....	21 @
No. 24s-2 ply chain warps.....	22 1/2 @
No. 28s-2 ply chain warps.....	23 @
No. 30s-2 ply chain warps.....	24 1/2 @
No. 16s-3 ply hard twist.....	20 @
No. 20s-3 ply hard twist.....	20 @
No. 28s-3 ply hard twist.....	22 1/2 @

MECHANICAL.

Rapid Bridge Construction.

What American engineers and manufacturers can accomplish in an almost incredibly short time is shown by the ac-

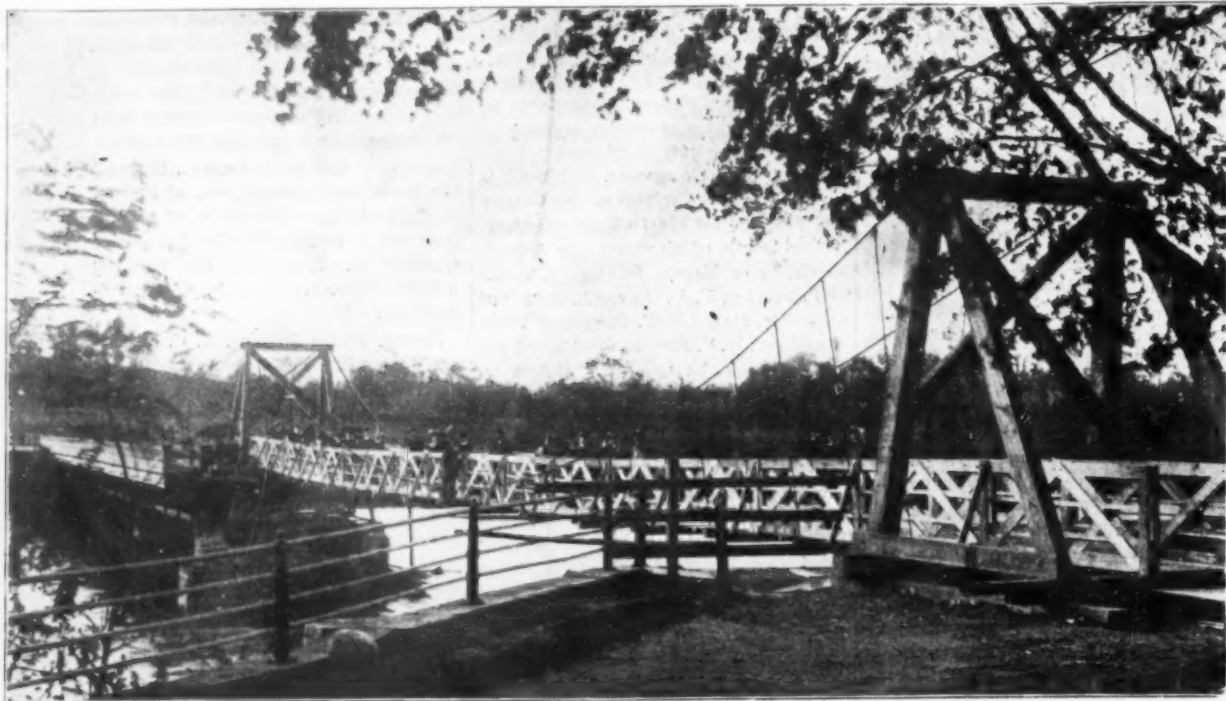
to suit the work and height of stories. They are built in two styles, with and without a knuckle-joint. The joint is necessary only when it is desired to often take hoist through a door or opening lower than the ceiling or on to a freight elevator with low crossbeam.

Punch, Shear and Bender Combined.

Metal-workers will welcome the introduction of the machine illustrated herewith, to punch, shear and bend. This machine performs the three separate and distinct duties without readjustment, and is

of the lever, which is an important feature on some lines of work. In case of breaking a punch it may be reground and washers used to make up the original length. This may be repeated until the punch is worn away. The rigid shear blade may be adjusted to take up all wear.

The bender has two thumbscrews to adjust for the different thicknesses of iron; also an adjustable stop or gauge.



BRIDGE DESIGNED AND MADE IN THREE DAYS.

companied illustration of a bridge. This bridge was designed and built in three days, and because of this rapidity considerable interest has been aroused in the structure.

The recent floods, which caused so much damage at Paterson, N. J., carried away a bridge of the Hudson River Trolley Co. In order to prevent an interruption to travel, inconvenient to the public and costly to the company, it was important to provide some method of connecting the parts of the road. To effect this, it was decided to erect a temporary suspension bridge, and an order for it was sent to John A. Roebling's Sons' Co., at Trenton, N. J. Plans were at once prepared, materials ordered and rushed to the bridge site. The work of designing the bridge, constructing the cables, suspenders and necessary fittings, together with time consumed in shipment from Trenton, occupied three days.

Erection was immediately commenced upon the delivery of the materials. This was completed and the bridge thrown open to the public in forty-eight hours. The bridge is 150 feet long and four feet wide. The cables are 1½" diameter steel wire ropes, and will safely carry the entire span fully loaded. The design was prepared by S. A. Cooney, engineer of the John A. Roebling's Company, and the bridge was erected under his direction.

The Houser Portable Hoist.

Many manufacturers, millers and men in other businesses where it is required to lift and pile boxes, bales and other forms of packages find the necessity for a practical and profitable hoist. They will find such an equipment illustrated herewith. This is the Houser Portable Hoist, now being used successfully in numerous warehouses, knitting mills, paper mills, cotton and woolen manufactories and others.

This labor-saving device is designed especially for piling cases, bales and goods of like description.

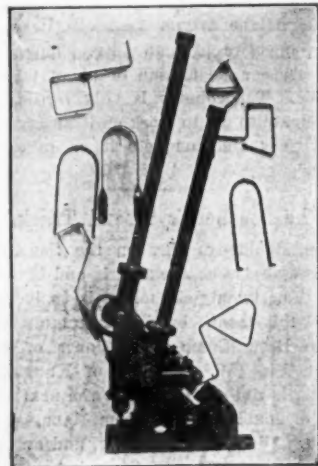
The machine is strong and substantial, the frame entirely of steel, and in height

The rollers on platform are set in frame and can be turned in either direction. With each machine is furnished two pinch bars and two rollers for use in piling.

Although the machine is necessarily heavy, on account of its strength, it can be easily handled and rolled around at will, the front casters turning on roller bearings.

In raising the load is held by a ratchet working in teeth of gear. In lowering the handle is thrown into center of brake wheel, and load held and lowered by means of a friction brake.

most compact and efficient. The punch in no way conflicts with the shear and bender, or vice versa. Their relations are identically the same as the claw is to the claw-hammer.



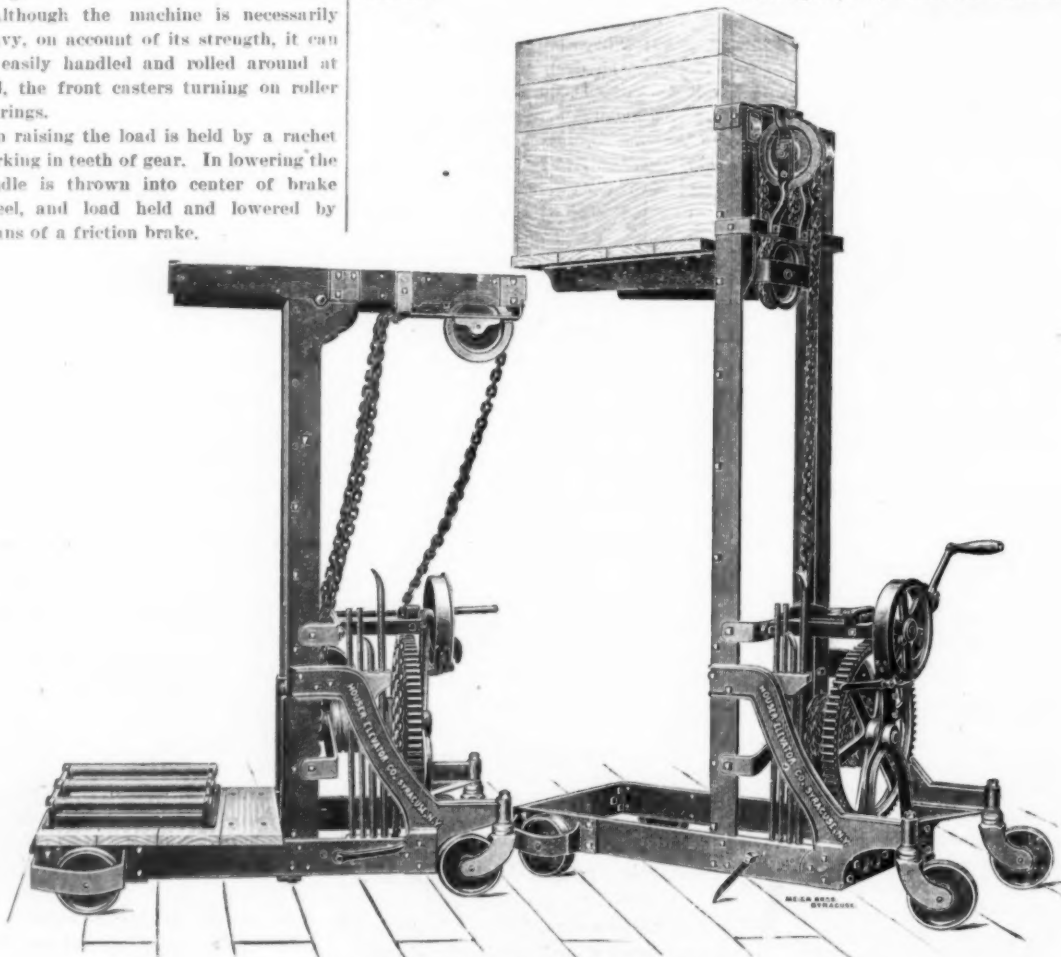
PUNCH, SHEAR AND BENDER.

Forms may be placed on the receptacle to form circles O, G's, etc. Steel, wrought and cast iron are used in the construction of the machine where they serve the best purpose.

This is a practicable punch, shear and bender for the plumbing, steamfitting and cornice shop, and is indispensable to the blacksmith.

All parts are interchangeable.

The J. F. Kidder Manufacturing Co., Burlington, Vt., builds the machine.



THE HOUSER PORTABLE HOIST.

One man can lift 800 pounds with one of these hoists.

John E. Larrabee, 3 and 5 Market street, Amsterdam, N. Y., furnisher of hardware and mill supplies, builds the Houser hoist.

The punch and shear are worked by the one lever. The machine will punch and strip with one downward motion of the lever, thus reducing the breaking of the punches to a minimum, and will also punch and strip with the upward motion

Hartford Automatic Furnace Feeders

The feeding of fuel into furnaces automatically is worthy of the careful attention of all manufacturers who have material that can be handled in this manner.

Fuel automatically deposited into the furnaces with a first-class apparatus will keep an even, hot fire, burning practically all the combustible matter, making a perfect smoke-burner. Manufacturers who, on account of smoke ordinances, cannot burn smoke-producing fuel will find relief in the Hartford improved automatic furnace feeders.

A Large Pumping Engine.

The city of Windsor, Ontario, on the Detroit river, opposite Detroit, Mich., numbers about 15,000 inhabitants, engaged largely in manufacturing. The surrounding territory is very level, and is devoted to truck-farming, the products finding a market in Detroit. Windsor has been eclipsed hitherto by its greater rival

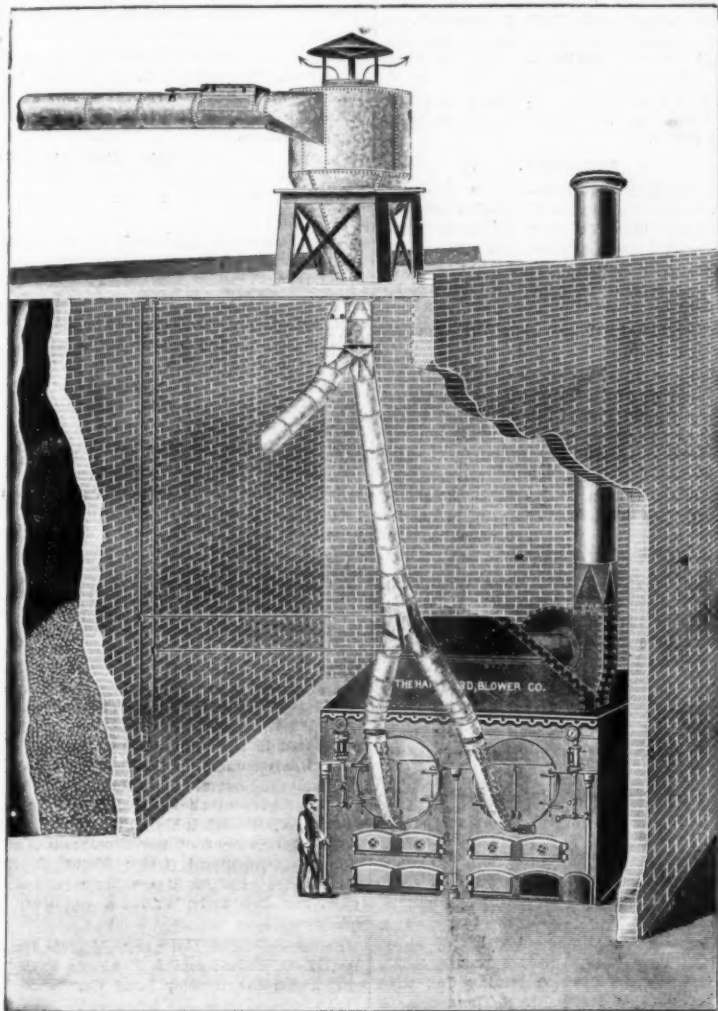
of course, necessary to employ pumps, the same pumps being used for both domestic and fire service. On account of the level nature of the city, only fifty pounds water pressure is needed for domestic water supply, while 100 pounds is required for fire service. A large pumping engine, which is now being installed, is so arranged that this may be obtained at will.

The engine has been built by the Snow

the Snow Steam Pump Works for Traverse City, Mich.

Asteroid Roofing.

The importance of roofing is evidenced, among other ways, by the number of manufactured roofings now on the market. Architects, contractors, owners of buildings and others interested in efficient and durable roofings will therefore be pleased to note the accompanying illustration of



HARTFORD AUTOMATIC FURNACE FEEDER.

This apparatus consists of placing a Hartford cyclone dust collector above the boiler, preferably on the roof of the boiler-house, and connecting same with a series of piping, switches and automatic furnace feeder, as illustrated herewith.

The piping and switches are so arranged that the material can be deposited in one or more boilers or to the shavings vault, or to each place at the same time. An automatic fire damper is furnished, which connects with fusible links, and in case of fire this closes completely, avoiding further danger of the fire spreading.

The Hartford patent improved automatic furnace feeders are especially designed, made of the best quality of galvanized sheet steel securely riveted and soldered, and provided with cast-iron heavy ring hinges, so the feeders may be swung back out of the way when it is necessary to get at the boilers.

The lower end of the feeder is made of two sections of improved pattern, with an iron lever for clamping same and holding it in position. A cast-iron door to be bolted to the boiler front to close the opening when the feeder is not in use, also a cast-iron flue lining to be set in the brick work, is furnished. All necessary fittings and attachments are furnished.

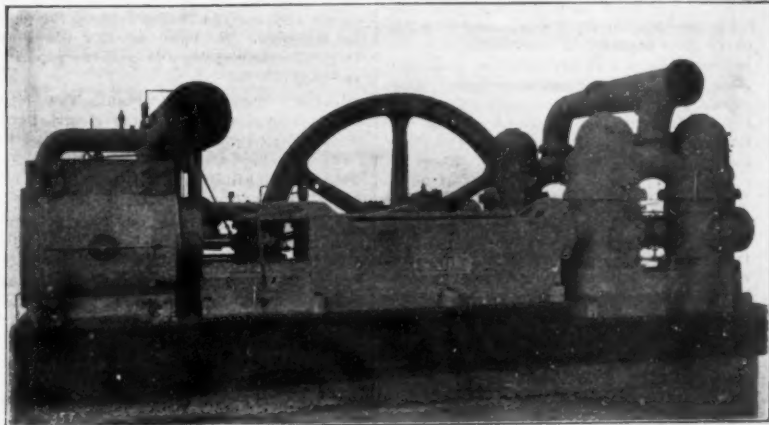
The Hartford Blower Co. of Hartford, Conn., makes a specialty of manufacturing and installing this apparatus and of furnishing complete exhaust systems for woodworking plants, as well as mechanical-draft apparatus for boilers.

across the river, but recently a number of American firms have established manufacturing plants on the Canadian side in order to avoid the import duties, and it is probable that the city will experience rapid growth.

The water supply of Windsor, like that of Detroit, is taken from the Detroit river, which is of uncommon purity. In order to raise the water to the height required for ordinary and fire service it is,

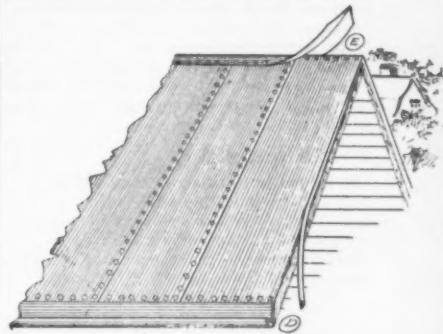
Steam Pump Works of Buffalo, N. Y. It is a horizontal, cross-compound, crank-and-flywheel engine, with the flywheel between the steam and water ends, as shown by the accompanying illustration. The engine is to be operated condensing in order to secure the highest economy. It will have a capacity of 5,000,000 imperial gallons in twenty-four hours when running at the rated piston speed of 207 feet per minute, or about 41½ revolutions, the stroke being thirty inches. The high-pressure cylinder is seventeen inches in diameter, and the low-pressure thirty-four inches. Steam is used at 100 pounds. The water cylinders are two in number, provided with outside center-packed plungers, each sixteen inches in diameter. This arrangement makes it easy to renew the plunger packings at any time, and renders any leakage immediately evident. The plunger crossheads are each connected to the respective steam-end crossheads by two side rods arranged diagonally, as will be seen from illustration. The steam cylinders and heads are steam-jacketed, and, together with the receivers, are to be encased with imported planished steel, while the trimmings will be nickel-plated. The engine is to be fitted with attached condensing apparatus, and the boiler-feed pump will also be operated by the main engine.

A very similar engine is being built by



LARGE PUMPING ENGINE FOR WINDSOR (ONT.) WATER-WORKS.

Asteroid Roofing being applied. This is a high-grade felt roofing of permanent character and moderate price, adaptable to a great diversity of service. It is practically fireproof, as flying embers will not ignite it, and it can be put on either flat or steep roofs. It is a clean roofing, there being nothing to soften and run into the gutters and spouts in the heat of summer, nor



ASTEROID ROOFING BEING APPLIED.

does it get hard and brittle in winter. In fact, it seems to be practically proof against changes of temperature and weather conditions. Asteroid is particularly desirable for use where destructive gases are generated, as it will resist their action almost perfectly.

A large and increasing demand for Asteroid is being promptly met by Messrs. Scott & Co., 234 East Front street, Cincinnati, Ohio., who manufacture it.



NEW UNION STATION FOR DURHAM, N. C., TO BE ERECTED BY THE S. A. L. N. & W. AND SOUTHERN RAILWAYS. FRANK P. MILBURN, ARCHITECT, COLUMBIA, S. C.

CONSTRUCTION DEPARTMENT.

TO OUR READERS!

In order to understand and follow up properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY.

The Manufacturers' Record seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

ADDRESS FULLY.

To insure prompt delivery of communications about items reported in these columns, the name of one or more incorporators of a newly incorporated enterprise should be shown on the letter addressed to that town, or to the town of the individual sought, as may be shown in the item, as sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. This will help to insure prompt delivery of your communication, although it is inevitable that some failures on the part of the postal authorities to deliver mail to new concerns will occur.

WRITE DIRECTLY.

It is suggested to advertisers and readers that in communicating with individuals and firms reported in these columns a letter written specifically about the matter reported is likely to receive quicker and surer attention than a mere circular.

ALABAMA.

Birmingham—Cannery.—Alabama Canning & Preserving Co. has been incorporated, with capital stock of \$25,000, by S. F. Cornelius, president; J. N. Cornelius, secretary-treasurer, both of Birmingham, and O. F. Bowman of Thorsby, Ala., manager.

Birmingham—Boiler Works.—Loop Draft Boiler Co. has been incorporated, with capital stock of \$100,000, and will manufacture boilers. J. M. Bradley is president; H. H. Stockmar, vice-president, and J. F. Senter, manager.

Birmingham—Mining and Manufacturing.—Robert H. Sayre of South Bethlehem, Pa.; Samuel Thomas of Catasqua, Pa., and W. H. Sayre of South Bethlehem, Pa., have incorporated the Sayre Mining & Manufacturing Co., with capital stock of \$200,000.

Birmingham—Turbine Engine Works.—It is stated that James Wilkinson, chief engineer of the Birmingham Railway, Light & Power Co., will organize a company to build plant for manufacturing a steam turbine engine which he has perfected.

Ensley—Flour Works.—It is rumored that the Empire Flour Co. will enlarge its plant.

Florida—Steam Laundry.—Eugene Nisbet contemplates establishing steam laundry for town of 6000 inhabitants.*

Fruitdale—Cannery.—J. B. Abrams of Brunswick, Ga., will establish a cannery for fruits and vegetables, capacity to be 20,000 cans daily, and operate as the J. B. Abrams Canning Co. at Fruitdale. Part of machinery has been purchased.

Huntsville—Lumber Company.—Huntsville Lumber Co. has increased capital stock from \$25,000 to \$100,000.

Mobile—Pottery.—The Cameron Pottery Co. of Cameron, W. Va., has made a proposition through the Mobile Commercial Club for the establishment of a \$50,000 branch pottery.

ARKANSAS.

Arkansas—Asphalt Mines and Plant.—The National Asphalt & Mineral Co. has been formed and begun the development of asphalt mines in Arkansas, and will arrange to undertake paving contracts. It is proposed to install a complete modern plant for mining and manufacturing asphalt for paving purposes. E. Ryan of 1006 Chestnut street, St. Louis, Mo., is general superintendent.*

Benton—Electric-light Plant.—The city does not expect to build the electric-light plant reported last week, but is prepared to grant franchise and to award contract for municipal lighting to private parties. Address The Mayor.

Clarksburg—Coal Mines.—C. L. Pyle, mentioned last week as proposing company to develop coal mines, is organizing the Consolidated Anthracite Coal Co., and will mine 1000 tons of anthracite coal daily. The capital stock is \$200,000.

Greenwood—Telephone System.—J. H. McConnell has franchise to construct telephone system.

Hartford—Improvement Company.—Incorporated: Hartford Improvement Co., capitalized at \$50,000, with M. M. Smith, president; H. J. Whetzel, vice-president, and T. W. Spillman, secretary.

Little Rock—Zinc Mines.—Red Buck Mining Co. is the correct title of new incorporation reported last week, and an extensive zinc mining property will be developed, a modern concentrating plant to be installed early next year. Capital stock is \$100,000. Alex. C. Hull, secretary, can be addressed.

Little Rock—Land Company.—George C. Lewis, C. S. Proctor and J. C. Pegg have incorporated the Southern Land Co., with capital stock of \$40,000.

Morrilton—Fruit Cultivation.—Elberta Fruit Co. has been organized, with a capital stock of \$17,500, to cultivate fruits; J. S. Martin, president; F. M. Wylie, secretary, and James S. Moore, treasurer.

Piggott—Printing Plant.—R. H. Dudley, H. W. Moore, G. E. Williams and others have incorporated the Banner Printing Co., with capital of \$4000.

Stamps—Lumber, etc.—The Hardware & Lumber Co. has been chartered, with a capital stock of \$50,000; J. H. Murray, president; Joseph E. Murray, vice-president, and A. S. Johnson, secretary.

FLORIDA.

Bartow—Cold-storage and Packing.—The Crystal Ice Works will establish a cold-storage plant and meat packery.

Hastings—Agriculture.—A. H. Carter, Frank B. Williams and F. E. Bugbee have incorporated the Florida Vegetable Co. for agricultural purposes. The capital stock is \$20,000.

Jacksonville—Automobile Works.—The Florida Automobile Co. is the correct title of new corporation reported last week for manufacturing and dealing in automobiles. A 50x125-foot building is being erected, the architect in charge being M. C. Hutto. L. C. Moore is secretary; offices at 132 E. Bay street.*

Jacksonville—Lumber Manufacturing, etc. W. J. Hillman, H. A. McEachern and D. H. McMillan have incorporated the W. J. Hillman Company to manufacture lumber, etc. The capital stock is \$21,000.

Jacksonville—Turpentine Plant.—Southern Turpentine & Paint Manufacturing Co. has been incorporated, with capital stock of \$30,000, to build plant for distilling turpentine, manufacturing paint, etc. D. E. West is president, and D. G. McKethan, vice-president. The latter was mentioned last month as interested in a new enterprise of this character.

Jefferson County—Lumber Mills, etc.—J. N. Bray, D. C. Ashley, W. M. Gibbons and others of Valdosta, Ga., have purchased 4000 acres of timber lands in Jefferson county for \$15,000. They propose developing the property by erecting saw-mills, turpentine stills, etc.

Miami—Brick Works.—H. F. Hahn will organize a company to establish brick works.

Pensacola—Fertilizer Plant.—Goulding Fertilizer Co. contemplates enlarging its plant.

Pensacola—Real Estate.—Incorporated: The Fisher Real Estate Agency, capitalized at \$10,000, and A. A. Fisher, president.

Tallahassee—Naval Stores.—George W. Saxon, C. H. Barnes, Ralph Jessup and Wm. A. Rawls have incorporated the Saxon-Barnes Land & Naval Stores Co., with capital stock of \$100,000.

West Palm Beach—Fruit Packery.—F. O. Green Company will be incorporated, with capital stock of \$50,000, to build packing-houses for fruit. The incorporators are F. O. Green and Florence E. Green of Boynton, Fla., and C. C. Chillingworth of West Palm Beach.

GEORGIA.

Atlanta—Knitting Mill.—James Milrow, T. C. Waters and James E. Belcher have incorporated the Piedmont Knitting Mills, with capital stock of \$6000, and privilege of increasing to \$100,000. This company will acquire and improve a plant established by Mr. Milrow.

Cartersville—Ice Plant.—The Glireath Company will build an ice plant.

Columbus—Brick Works.—Shepherd Bros. will build an additional plant for the manufacture of plain, ornamental and fancy brick. Contract has been awarded for all the machinery required; output to be from 50,000 to 75,000 daily.

Columbus—Cotton Mills.—E. N. Clemence contemplates organizing company to build a cotton mill. He was mentioned several months ago in this connection.

Columbus—Cotton Mill.—Eagle & Phenix Mills will increase the capacity of its woolen department 12 per cent, enlarging from a nine-set to a ten-set equipment. The machinery has been purchased.

Dalhousie—Gold Mines.—John Huff and F. V. Moore will develop gold-mining property.

Flowers Branch—Cotton-oil Mill.—Flowers Branch Gin & Oil Mill Co. has completed its 30-ton cottonseed-oil mill.

Flowers Branch—Fertilizer Factory.—W. W. Cooper, H. J. Cooper and J. B. Pierce have incorporated the Flowers Branch Fertilizer Co., but the plant is being erected at Flowers Branch, Ga., not Florida, as erroneously reported last week. The authorized capital is \$50,000.

Georgia—Mica Mining.—Articles of incorporation have been filed at Syracuse, N. Y., for the Georgia Mica & Mining Co., with capital stock of \$50,000. Earl Thompson, N. E. Dillenbeck and Asa L. Merrick are the incorporators. It is presumed they are of Syracuse, but this cannot be stated definitely as the address.

Greenville—Cotton Ginnery.—R. S. Parham will rebuild next summer his cotton ginnery recently destroyed by fire. He will install a five-stand 70-saw outfit at a cost of about \$4000.*

Hartwell—Cotton Mill.—Witham Cotton Mills will enlarge and improve its plant, installing 100 looms, adding dyeing equipment, etc.

Macon—Printing Plant.—T. A. Coleman, C. B. Lawton, W. E. Morris and G. H. Walker have incorporated the T. A. Coleman Book & Printing Co., with capital stock of \$25,000.

Rome—Iron Mining.—M. E. Claghorn, H. D. Hill and H. M. Smith have incorporated the American Iron Co., with capital stock of \$30,000, for mining iron, etc.

Stilesboro—Cotton-twine Mill.—It is proposed to organize company to establish a cotton-twine rope mill. For information address The Mayor.*

Stinson—Cotton Ginnery.—Stinson Gin Co. will rebuild its cotton ginnery lately destroyed by fire; new plant will consist of four 70-saw gins.*

Summit—Coal Mines.—R. W. Jones of Chattanooga, Tenn., is organizing company to develop 200 acres of coal lands near Summit.

Walker County—Coal Lands.—S. M. Walker of Chattanooga, Tenn., has purchased 220 acres of coal lands in Walker county, and may arrange for immediate developments.

Winterville—Cotton Gin.—J. W. Tuck will rebuild his cotton gin recently destroyed by fire; size of building to be 40x60 feet, and seventy-five horse-power to be used.*

KENTUCKY.

Bardstown—Water-works.—The city has voted the issuance of \$24,000 in bonds for the water-works lately reported, but the validity of the election is to be tested in the courts.

It is probable that bids for constructing the system will be opened in January. Two pumps for direct system to be operated at eighty pounds steam pressure, also about three miles of 10, 8, 6 and 4-inch pipe. Frank Schofield of New Albany, Ind., is the designing engineer, and estimates cost at \$22,000.

Covington—Planing Mill.—Frank Meyer of Covington, Mary and E. L. Gresham of Latonia, Ky., and others have incorporated the Kentucky Planing Mill Co., with capital stock of \$25,000.

Frankfort—Electric-light Plant.—Reports state that the People's Electric Light & Power Co. will build a new electric-light plant.

Henderson—Coal Mines.—J. L. Nicholson of Philadelphia, Pa., will open coal mines at Henderson.

Letcher County—Coal Lands.—An Eastern syndicate has purchased an extensive tract of coal land in Letcher county from B. F. Johnson of Tackitt, Ky.

Lexington—Tobacco Warehouse.—Charles W. Bohmer of Clarksville, Tenn., proposes forming a \$100,000 stock company to build tobacco warehouse and prizery at Lexington.

Louisville—Water-power-Electrical Plant.—It is stated that a syndicate of Eastern capitalists is now formulating plans for the development of the water-power of the Ohio Falls at Louisville. Plans for such a project have been considered previously and mentioned several times in the Manufacturers' Record. According to recent estimates, it is stated that a 75,000-horse-power plant can be constructed to transmit the energy by electricity to Louisville, Cincinnati, Indianapolis and other cities for the use of railways, factories and other industrial enterprises requiring power. Among those mentioned as interested in the proposition at present are Prof. Louis Duncan of the Boston School of Technology, Boston, Mass.; John Birkinbine, said to represent the United Gas Improvement Co., Philadelphia, Pa.; W. Kelsey Schoepf, president of the Cincinnati Traction Co., Cincinnati, Ohio; Major George McC. Derby, United States engineer, Louisville, and Benazette Williams, engineer, of Chicago.

Louisville—Land Company.—George Bradley, H. G. Dempf and J. F. Coady have incorporated the Bradley Land Co.

Louisville—Brick Works.—E. H. Kent of Columbus, Ohio, proposes establishing at Louisville a plant for the manufacture of a patented paving brick. An investment of \$100,000 is contemplated.

Louisville—Cereal Mill.—I. F. Whiteside, T. L. Jefferson and associates will organize the Louisville Malt Wheat Biscuit Co., with capital stock of \$50,000, to establish a cereal mill.

Louisville—Drying Machinery Plant.—J. W. Biles, president of the Turney Dryer Co., is reorganizing his company under the same name with ample facilities and capital for manufacturing drying machinery and filter presses.

Louisville—Dental Supplies.—J. D. Bennett, T. R. Davis and others have incorporated the Bennett Dental Co., to deal in dental supplies.

Louisville—Skirt Factory.—John C. Howard, Churchill R. Howard, Frank Miller and Peter Lee Atherton have incorporated the Howard Skirt Co. to manufacture skirts. Capital stock is \$20,000.

Louisville—Portland Cement Works.—It is reported that George Baker, representing Philadelphia capitalists, is completing arrangements for the establishment of a \$500,000 Portland cement works at Louisville.

Morgantown—Lead Mining.—Deer Creek Mining Co. has been incorporated by J. M. Crowe, J. A. Sutton and A. D. Noe to mine lead and other minerals. The capital stock is \$10,000.

Newcastle—Telephone Company.—William Callahan, W. B. Wilson and I. B. Helburn have incorporated the Eminence Home Telephone Co., with capital stock of \$25,000.

Rock Castle—Coal Mines, etc.—The Rock Castle Mining, Lumber & Ore Co. is preparing to develop 25,000 acres of timber lands, extensive tracts of coal land and other properties. This company has lately passed to the ownership of J. Henry Beadle of Daguer Mines, Pa.; S. C. Bond of Bond, Md., and associates, who contemplate making plans for the development of all the properties owned and controlled.

LOUISIANA.

Eunice—Rice Mill.—M. D. Lewis and associates are organizing company to build the rice mill reported last week, and propose an output of 600 barrels of rice daily. About \$50,000 will be invested.

Homer—Planing Mill.—J. T. De Loach will build a planing mill.

Lake Charles—Paper Mill.—J. G. Powell, D. R. Swift, H. C. Drew and others are reported as interested in the formation of a \$300,000 company to establish paper mill.

Minden—Water-works.—The city has purchased all the machinery required for the construction of its water-works reported last week. From \$35,000 to \$40,000 will be expended. J. H. Thompson is the engineer in charge.

Minden—Barrel Factory.—Webster Lumber Co. contemplates establishing barrel-heading factory.

New Orleans—Rubber Manufacturing.—Wm. D. Dow, 1925 Esplanade avenue, contemplates organizing company to manufacture rubber goods from crude rubber.*

New Orleans—Distillery.—The International Distilling Co., lately incorporated with capital stock of \$500,000, has purchased site at \$15,500 and will build plant for manufacturing alcohol. Burnhold Myer of the New Orleans Molasses Co. is organizing the new company.

New Orleans—Water Supply.—The report referred to last week regarding a company to be incorporated to pump water from Vossburg, Miss., to New Orleans was not correct. Vossburg Mineral Springs Co. has been considering increasing its capital for the purpose of piping water by gravity from its springs to New Orleans, but no arrangements have as yet been perfected. An expenditure of from \$750,000 to \$1,000,000 is contemplated. Plans are based on estimates by John O. Leary of Passaic, N. J. Henry Mordecai is president.

New Orleans—Land Developments.—G. H. T. Shaw of Dixon, Ill., has purchased 100,000 acres of land, which he proposes draining and otherwise developing as an agricultural territory, from \$500,000 to \$1,000,000 to be invested. No plans have as yet been perfected for any of the development work, as complete surveys will be necessary before any definite arrangements can be concluded.

New Orleans—Fuel Briquette Plant.—Wills J. Roussel, 708 Royal street, will organize, as reported last week, a company to manufacture fuel from garbage and waste matter of all kinds, and proposes a capital of \$150,000.*

New Orleans—Sandstone Quarries, Sewer-pipe Works, etc.—Alexander W. Maas, Room 6, Masonic Building, proposes the development of kaolin deposits and sandstone quarries and building a large plant for the manufacture of sewer pipe, tiling, etc. About \$200,000 is reported as to be invested.

New Orleans—Turpentine Plant.—George O. Gilmer will organize a stock company, with capital of \$80,000, to establish a turpentine distilling plant. Mr. Gilmer now operates a plant of this character, and it is believed the new company is to acquire his establishment.

Oberlin—Brick Works.—Chicago capitalists (including brick manufacturers) will organize a stock company to establish pressed-brick works for utilizing brick-clay beds found on the land of E. Buhler of Oberlin.

MARYLAND.

Baldwin—Cotton Mill.—Baldwin Manufacturing Co., reported in September, is erecting building 50x150 feet, and will install fifty looms for manufacturing piece goods, curtains, etc. Machinery has been purchased. About \$50,000 will be invested.

Baltimore—Grocery.—J. Henry Thomas, Ernest Fleischmann and others have incorporated the Fairall Company, with capital stock of \$25,000.

Baltimore—Foundry and Machine Shops.—Patapasco Machine & Supply Co. has been incorporated, with capital stock of \$25,000, and will conduct a general machine shop and foundry at 219-212 Patterson street. Charles Tyler is president; F. Oscar Reuter, secretary, and Walter B. Tyler, general manager; offices at 110 E. Pratt street.

MISSISSIPPI.

Aberdeen—Pearl-button Factory.—Aberdeen Button Manufacturing Co., reported incorporated last month with \$10,000 capital, has elected A. J. Brown, president; W. W. Watkins, vice-president; J. R. Young, secretary; W. W. McDougal, manager. Contract will be awarded at once for equipment of machinery.*

Collins—Naval-stores Plant.—Charles E. Pearce will establish plant for manufacturing naval stores by a new process. Monthly output will probably be 10,000 gallons of turpentine, 600 barrels of tar and 10,000 gallons of by-products. It is reported that \$40,000 will be invested.

Gulfport—Lumber Plant.—I. D. Toomer has completed his saw-mill with daily capacity of 20,000 feet, and will soon add planing equipment, shingle and box-manufacturing machinery.

Ittabena—Timber Lands.—W. J. Cude of Kimmins, Tenn., has purchased 4000 acres of timber land near Ittabena for \$40,000.

McHenry—Drug Company.—C. M. Legget, J. Legget, Jr., and others have incorporated the McHenry Drug Co., with a capital stock of \$6000.

Meridian—Machine Works.—C. P. Wetherbee and W. C. Wetherbee of Waynesboro, Miss., have purchased the Martin Machine Works, and will form a corporation to enlarge and continue the plant.

Oloh—Lumber Plant.—G. M. Kennedy, S. E. Perkins, Wm. Collins and others have incorporated the Collins Lumber Co. to manufacture lumber. The capital stock is \$150,000.

MISSOURI.

Butler—Sewerage System.—City contemplates the construction of a sewerage system. Address The Mayor.

Columbia—Electric-light and Water Plants.—The city has deferred to November 24 the election authorizing a bonded indebtedness of \$100,000 for acquiring water-works and light plant.

Hume—Electric Lighting, Water Supply, etc.—Hume Gas, Oil & Mining Co. is reported as to be organized for the construction of electric-light plant, water-works and natural-gas supply system.

Kansas City—Wagon Factory.—The Beggs Wagon Co. of Carrollton, Mo., contemplates establishing a branch factory at Kansas City.

St. Louis—Ammonia Plant.—The National Ammonia Co. has let contract for the construction and equipment of a \$300,000 plant.

St. Louis—Jewelry Novelties.—E. A. Longley, Charles H. Schoen and others have incorporated the Louisiana Purchase Jewelry Manufacturing Co., with capital of \$5000.

St. Louis—Stockyards.—Independent Stockyards Co. has been incorporated, with capital stock of \$100,000, by Joseph W. Hannauer, Patrick F. O'Neil, Earnest Weaver and others.

St. Louis—Children's Cap Factory.—Wm. L. M. Clark, B. M. Silverstein, Sol. Weinberg and H. Silkerman have incorporated the Delmar Manufacturing Co. to manufacture infants' caps and children's bonnets. Capital is \$2500.*

St. Louis—Shoe Factory.—Peters Shoe Co. will vote December 21 on increasing capital from \$500,000 to \$800,000.

St. Louis—Bakers' Supplies.—Becker-Schnepel Bakers' Supply Co. has been incorporated to deal in bakers' supplies; capital stock \$20,000.

St. Louis—Machinery.—A. B. Hazard Machinery Co. has been incorporated by A. B. Hazard, E. D. Hazard and H. R. Darst.

Versailles—Electric-light Plant.—City has voted \$10,000 in bonds for the erection of electric-light plant. Address The Mayor.

NORTH CAROLINA.

Charlotte—Biscuit Factory.—A. R. Newcomb and associates will organize an incorporated company to establish the biscuit factory mentioned last week, as well as to manufacture a bread and biscuit heater. The biscuit factory will be located in Charlotte and the heater factory in Hickory, N. C.

Clinton—Planing Mill.—W. E. Register Lumber Co. will build planing mill for daily output of 10,000 feet of lumber.*

Drexel—Furniture Factory.—Drexel Furniture Co. has been incorporated, with capital stock of \$75,000, and will manufacture cheap and medium grade bedroom suits. A. M. Kistler is president; S. Huffman, vice-president, and J. S. Abernathy, secretary.*

Durham—Medicine Factory.—Gowan Medical Co. has been incorporated, with an authorized capital of \$500,000, for manufacturing proprietary medicines; incorporators, Gowan Durburny and Sidney Chambers of Durham and George E. Hurd of Chicago, Ill.

Edward—Manufacturing.—Incorporated: Edward Manufacturing Co., capital \$10,000, by W. B. Reynolds, W. H. Dixon, W. R. Boyd and others.*

Fayetteville—Pottery.—E. A. Poe is interested in the establishment of a plant for manufacturing flower pots and stove tiles.*

Fremont—Improvement Company.—Chartered: Fremont Building & Improvement Co., \$20,000 capital, by Jo Hare and others.

James City—Saw-mill.—J. S. Basnight will probably rebuild his saw-mill, reported burned last week.

Lenoir—Lumber Plant.—Incorporated: The Yaddin Lumber Co., with capital stock of \$400,000, to manufacture lumber, deal in timber land, etc. The incorporators are J. Newton Peck of Philadelphia, Andrew C. Fuller, Wellsville, N. Y.; D. A. Ritchie, Richmond, Va.; Edmund J. Johns of Lenoir and others.

Morganton—Water-works.—Messrs. Harri-man & Pressy, reported last week as securing water-works franchise, state that they are not at all interested in said franchise, but that H. L. Millner is the engineer in charge.

Raleigh—Cotton Mill.—It is rumored that the Raleigh Cotton Mills will build a large addition.

Salisbury—Harness and Vehicle Factory.—A. M. Bassinger and C. Fronberger will establish plant for manufacturing buggies, wagons, baby carriages, harness, etc. A two-story brick building 50x75 feet is now being erected for them.

Shelby—Cotton Mill, etc.—Lily Mill & Power Co., reported organized, etc., last month, is preparing to decide details for construction of its proposed cotton mill and development of water-power. It is said \$200,000 will be invested. John F. Schenck is president.

Tryon—Water-works.—The town is considering the advisability of constructing water-works, and estimates are wanted. Address The Mayor.*

Wilson—Machine Shop.—Chartered: W. J. Davis Machine Co., \$50,000 capital, to conduct machine and woodworking shops. The incorporators are W. J. and J. W. Wilson.

SOUTH CAROLINA.

Anderson—Machine Shop.—H. C. Townsend has established a shop for covering cotton-mill rolls.

Anderson—Cotton Mill.—It is reported that the Brogan Cotton Mills will increase capital stock from \$500,000 to \$1,000,000.

Charleston—Trunk Factory.—Standard Trunk & Package Co. has been incorporated, with capital stock of \$30,000, to manufacture trunks; Frank O'Neil, president-treasurer, and N. H. Blitch, secretary.

Charleston—Land Company.—Henry H. Ficken and William Falt have incorporated the Cape Roman Land & Investment Co., with capital stock of \$3000.

Charleston—Cannery and Oyster Planting.—Gibbes Preserving Co. of Baltimore, Md., has concluded the purchase of 40,000 acres of oyster bottoms on the South Carolina coast, and will plant oysters. The company's cannery at Charleston has recently been doubled in capacity, but further improvements are contemplated.

Charleston—Woodworking Plant.—Percival Manufacturing Co. has changed name to the DeLance Manufacturing Co. and increased capital stock from \$16,000 to \$31,000.

Charleston—Marl Plant.—Ingleside Mining & Manufacturing Co. will rebuild its plant for mining and calcining marl, recently damaged to the extent of \$7500.

Charleston—Cotton Mill.—Royal Bag & Yarn Manufacturing Co., lately reported as installing additional machinery, is doubling its plant of 5000 spindles and 200 bag looms. The expenditure for the enlargements is about \$70,000. All of the machinery has been purchased.

Columbia—Metal-working Plant.—L. B. Dozier will organize company to manufacture cornices and other metal work.

Coronaca—Cotton-oil Mill.—T. W. Todd, J. S. Klugh, W. B. Milwee and others have incorporated the Coronaca Oil Mills, with capital stock of \$15,000.

Darlington—Clocks.—J. B. Hudnall, E. C. Dennis and C. O. Coale have incorporated the Calendar Clock Co., with capital of \$3000.

Dillon—Mercantile.—L. C. Braddy and others have incorporated the L. C. Braddy Company, with capital stock of \$5000.

Dillon—Drug Company.—W. J. Carter and James D. Hargrave have incorporated the Dillon Drug Co., with capital stock of \$10,000.

Florence—Stalk-cutter Works.—C. C. Commander will establish plant for manufacturing a patented stalk-cutter.

Fort Mill—Electric-light and Water Works.—The citizens have voted a tax levy to provide funds for erecting electric-light plant and constructing water-works. Address The Mayor.

Lando—Cotton Mill.—Manetta Mills is adding mule spindles, and will install additional looms.

Spartanburg—Shoe Company.—Charles Scruggs and W. D. Wright have incorporated the Scruggs-Wright Shoe Co., with capital of \$5000.

Spartanburg—Cotton Ginnery.—Roebuck Ginning Co. has been incorporated, with capital of \$2000.

Spartanburg—Builders' Materials.—Piedmont Builders' Supply Co., reported incorporated last week with \$20,000 capital, will not manufacture, but deal in all kinds of builders' materials. R. J. Alderman of Alcolu, S. C., is president.

TENNESSEE.

Chattanooga—Foundry, etc.—Wheland Machine Works has begun the erection of power-house 45x105 feet, blacksmith shop 45x105 feet and foundry 110x200 feet, of steel and brick construction. The machinery will be operated by electricity. All contracts have been made.

Crab Orchard—Saw-mill.—Tennessee Coal & Lumber Co. has contracted for the erection of its saw-mill reported last week, main building to be 40x100 feet, A. J. Holmes being the architect in charge. This company has 10,000 acres of coal and timber land in Cumberland county, which will be developed as rapidly as possible; offices at Ozone, Tenn.

Jefferson City—Woolen Mill.—Jefferson City Woolen Mills is reported as to add considerable new machinery.

Jellico—Water-works.—The construction of water-works is talked of, and possibly the city will build system. Address The Mayor.

Knoxville—Knitting Mill.—Standard Knitting Mills has contracted for additional machinery.

Manchester—Saw-mill.—Mr. Prater has purchased timber lands and will erect saw-mill.

Memphis—Lumber Plant.—Mahannah Lumber Manufacturing Co. has been incorporated, with capital stock of \$12,000, to manufacture lumber, including general wagon materials; R. M. Chambliss, A. Mahannah, L. G. Covington, D. R. Tripett and Mann Willis, incorporators.

Memphis—Land Company.—W. K. Burton, Wm. W. Fouss, Charles R. Rosey and others have incorporated the Poplar Boulevard Land Co., with capital stock of \$12,000.

Memphis—Importing.—A. J. Oakley, W. M. Hall, A. E. Malone, E. R. Farham and Ben Lang have incorporated the National Importing Co., with capital stock of \$15,000.

Memphis—Publishing.—Southern Publishing Co. has been incorporated, with capital of \$4000, by John L. Harrell, B. F. Whitten and others.

Memphis—Publishing.—Ed. F. Grace, Gus. Fleming, I. B. Meyers and others have incorporated the Union Labor Journal Building & Publishing Co., with capital stock of \$15,000.

Memphis—Lumber Plant.—Stapp Lumber Co., reported incorporated last month, has a paid-up capital of \$8000, and will invest about \$4000 of this amount for building a lumber plant. Timber lands have been purchased. Address care of E. E. Goodlander.

Nashville—Cement Paving.—Cumberland Cement & Paving Co., capitalized at \$5000, has been incorporated by J. W. Turner, John Whorley, Gus Lee, J. R. Jones and J. B. Carr.

Nashville—Coal Company.—Zechini Coal Co. has been incorporated, with capital stock of \$5000, by Peter Zechini, Thomas Zechini, W. H. Jenkins, R. B. Baird and C. O. Baird.

Waynesboro—Turnpike.—W. H. Stricklin, L. G. Holland, J. H. Arnold and others have incorporated the Waynesboro & Clifton Turnpike Co., with capital stock of \$16,000.

TEXAS.

Angleton—Oil Wells.—Chartered: Angleton Oil Co., capital stock \$10,000, to prospect for oil and other minerals; incorporators, J. C. Walker, W. W. Seley, Sam Sanger, Tom Padgett and W. H. Jones.

Beaumont—Oil Wells.—Chartered: Mutual Development Co., capital stock \$10,000, to prospect for oil and other minerals; incorporators, Jas. F. Weed, J. J. Copley and Oswald S. Parker.

Beaumont—Oil Wells.—J. D. Crawford, W. B. Sharp and Fred W. Freeman have incorporated the Huntington Oil Co., with capital of \$4000, to drill oil wells.

Beaumont—Oil Wells.—J. H. Blackburn, N. Blackburn and John Murray have incorporated the Texas Crude Oil & Mining Co., with capital stock of \$20,000, to prospect for oil and other minerals.

Fort Worth—Paints, etc.—W. W. Mulkey, K. A. Mulkey and F. W. Rosson have incorporated the Texas Paint and Paper House, with capital stock of \$10,000.

Gilmer—Lumber Plant.—Whiteman-Decker Lumber Co. will be organized to develop 25,000 acres of pine timber lands and about January 1 work will begin on erection of mill with daily capacity of 125,000 feet. About \$25,000 will be invested altogether. Address care of W. T. Whiteman, Winsboro, Texas.

Houston—Illuminated Advertisements.—E. K. Dillingham, M. P. Dillingham and Harry A. Black have incorporated the Flashlight Advertising Co. to manufacture illuminated pictorial advertisements; capital stock \$10,000.

Houston—Oil Wells.—J. J. Hines, J. H. Fulgham and J. H. Kohn have incorporated the National Oil & Development Co., with capital stock of \$100,000, to drill for oil.

Houston—Kaolin Developments.—Colonel Grimeshaw and associates propose the development of kaolin beds in Fayette county and the establishment of manufacturing plants to utilize the clay.

Laurel—Cotton Gin.—White Gin & Cotton Co. will rebuild its cotton gin recently destroyed by fire. Daily capacity will be 200 bales, and about \$10,000 will be invested.

Livingston—Saw-mill.—Knox & Knox of Dallas, Texas, will build a large saw-mill near Livingston.

New Braunfels—Water Supply.—The city council will vote November 24 on appropriating \$10,000 to drill an artesian well for water supply. Address The Mayor.

Orange—Saw-mill.—R. C. Barber and associates of Cleburne, Texas, will build saw-mill with daily capacity of 60,000 feet at Orange.

Rockdale—Coal Mining.—Rockdale Lignite Co. has been incorporated, with capital of \$10,000, by C. H. Coffield, J. H. Burnet and E. A. Wallace, for mining coal, etc.

San Antonio—Oil Wells.—J. D. Guinn, Frank C. Smith, H. M. Hunter and W. F. Jones have incorporated the Cibola Oil Co., with capital stock of \$100,000, to drill for oil.

Waco—Fuel Supplies.—R. L. Matthews, R. O. Rounsavall and R. W. Rounsavall have incorporated the Waco Fuel Co., with capital stock of \$10,000.

Waco—Knitting Mills.—Dispatches state that E. C. Osborne of South Carolina will establish a hosiery knitting mill.

VIRGINIA.

Basic City—Extracts.—Basic Extract Co. has been incorporated, with a capital stock of \$25,000, and W. H. Gardner, president.

Bristol—Ice Plant.—Crystall Ice Co. has been incorporated, with capital stock of \$30,000, and will build an ice plant. John C. Anderson is president; S. V. Fulkerson, vice-president, and J. B. Baumgartner, secretary.

Chatham—Saw-mill.—Charles G. Watson of Danville, Va., will build near Chatham a saw-mill for cutting 14,000 feet daily.

Danville—Tobacco Factory.—Reports regarding the burning and rebuilding of John N. Wyllie & Co.'s tobacco factory, mentioned last week, were not accurate. The firm's plant was only slightly damaged, fire being confined to a small annex.

Fredericksburg—Steam Laundry.—John E. Rodgers will establish steam laundry.

Harrisonburg—Telephone System.—Rockingham Mutual Telephone Co. has increased capital from \$5000 to \$25,000.

Norfolk—Furnace Company.—The Coal Saving Furnace Co. has been incorporated, with Thomas Black president and an authorized capital of \$50,000.

Richmond—Hospital Supplies Factory.—Southern Hospital Supply Co. has been incorporated, with capital stock of \$25,000, and acquires the plant of George W. Euker Company, manufacturer of hospital furniture, surgical instruments, etc. An additional factory will be built. E. O. Meyer is president; Dr. B. D. Booker, vice-president; C. L. Drease, secretary, and George W. Euker, general manager.

Romoke—Drug Company.—Chartered: The Barnes Drug Co., capitalized at \$25,000, with H. C. Barnes, president.

WEST VIRGINIA.

Fairmont—Stove Foundry.—M. L. Hutchinson, J. M. Jacobs, J. S. Echols and M. L. Sheets have incorporated the Mountain City Stove & Foundry Co. to manufacture stoves and conduct general foundry. The capital stock is \$25,000.

Grafton—Lumber Plant.—W. H. Bailey, Theodore Bush, John F. Phillips, A. W. Burdette, E. R. Glenn and others have incorpo-

rated the Mountain State Lumber Co., with capital stock of \$25,000, and will build plant to manufacture lumber, boxes, building materials, etc. Main structure will be 40x100 feet, material for it having been ordered.

Huntington—Lumber Plant.—J. A. Wood, Ida M. Wood and Brook Chambers of Huntington, W. Va., and L. L. Chambers of Welch, W. Va., have incorporated the Wood Lumber Co. to operate lumber plant. The capital stock is \$10,000.

Martinsburg—Dyeing Plant.—Clarence Corder will establish a steam dyeing plant.

Morgantown—Cement Building Block.—D. C. Core, A. L. De Moss, George C. Hess, S. T. Hall and C. E. Miller have incorporated the Morgantown Cement Building Block Co. to manufacture and deal in cement blocks for building, tiling, etc. Capital stock is \$25,000.

Morgantown—Coal Mines.—The Cochran Coal & Coke Co. of Uniontown, Pa., has purchased for development 6000 acres of coal land near Morgantown.

Moundsville—Coal Mines.—Glen Easton Coal & Coke Co. has begun the development of the coal lands noted last week as purchased, and will install complete modern mining equipment for an output of several thousand tons daily. Contract for considerable machinery has been awarded. Ernest Breich is engineer in charge; offices at 407 Keystone Bank Building, Pittsburg, Pa.

New Martinsville—Printing Plant.—F. V. James, Thomas P. Jacobs, Frank H. Hughes and associates have incorporated the Magnolia Printing Co., with capital stock of \$10,000.

Parkersburg—Printing, etc.—Central States Advertising Co., capitalized at \$10,000, has been incorporated by Charles S. Smoot of Parkersburg, W. H. Brigham of Marietta, Ohio, and others, for advertising, printing, publishing, etc.

Parsons—Water-works.—W. O. McNeely and Louis C. Dyre have applied for water-works franchise.

Wellsburg—Glass Works.—The Riverside Glass Works will rebuild its decorating department, damaged by fire last week to the extent of \$25,000.

Wheeling—Water-works Improvement.—The city will construct additional mains and make other improvements, for which \$35,000 is available. Address The Mayor.

Wheeling—Surgical-Instrument Factory.—The Wheeling Electrical Instrument Co. will be organized to establish plant for manufacturing electrical instruments and supplies for physicians; offices at 1119 Main street.

INDIAN TERRITORY.

Weleetka—Electric-light and Water Plant. Bernard De Wattville and Charles De Wattville have received franchise for construction of water-works and electric-light plant, and engineers are now preparing plans and specifications.

OKLAHOMA TERRITORY.

Asher—Land Company.—The Southern Land Co., capitalized at \$15,000, has been incorporated by J. C. Milner and George G. Boggs of Asher and E. B. Moore of Violet, O. T.

Cooperton—Mining and Milling.—Simson Watson, John H. Moux and Wm. Leonard have incorporated the North Star Mining & Milling Co., with a capital stock of \$2,000,000.

Enid—Gas Plant.—J. A. Jones of St. Louis, Mo., has received franchise to establish a \$100,000 gas plant.

Lawton—Mining and Milling.—W. H. Donely, T. J. Davis, H. O. Donahoe, D. O. Evans, E. G. Davis and G. W. Cotney have incorporated the Crescent Mining & Milling Co., with a capital stock of \$1,000,000.

Lawton—Cyanide Plant.—Wall Mining Co. contemplates building a \$50,000 cyanide plant for refining gold.

Mountain View—Gas and Oil Wells.—C. A. Bickel, H. A. Lamberson, A. E. Kobs and associates have incorporated the Mountain View Oil & Gas Co. to drill for oil and gas. The capital stock is \$14,000.

Mustang—Overalls Factory.—T. L. Mohr, Frank Dalton, W. M. Echling and H. G. Trospen have incorporated the Oklahoma Union Overalls Co., with capital stock of \$10,000.

Mustang—Improvement Company.—H. G. Trospen, T. L. Mohr, Frank Dalton and others have incorporated the Mustang Improvement Co., with capital of \$500.

Norman—Land Company.—Taninul Land & Improvement Co. has been incorporated by W. F. Essex and others, with capital stock of \$75,000.

Oklahoma City—Coal and Lumber.—Wise-Moist Coal & Lumber Co. has been incorporated, with capital stock of \$10,000, by J. F. and D. C. Wise of Joplin, Mo., and R. E. Moist of Oklahoma City.

Oklahoma City—Gas, Oil or Coal.—J. M. Owen, E. J. Streeter, H. M. Donnelly and others propose organizing a \$500,000 company to drill for coal, oil or gas for fuel purposes to be used in this city.

Rossville—Cotton Gin.—W. G. Hall will rebuild next summer his cotton gin recently destroyed by fire. A two-stand 70-saw outfit will be installed.

BURNED.

Charleston, S. C.—Burton Lumber Co.'s plant damaged to the extent of \$60,000.

Chattanooga, Tenn.—The Chattanooga Rapid Transit Co.'s power-house damaged by lightning to the extent of \$15,000.

Chico, Texas.—Hunt & Evans' cotton gin; loss reported at \$5000.

Egypt, Miss.—Egypt Gin & Mill Co.'s cotton gin.

Faunsdale, Ala.—J. E. Brown's cotton gin.

Frost, Texas.—Mitchell & Hawkins' cotton gin; loss reported at \$10,000.

Hot Springs, Ark.—J. A. Bauer's iron works; loss said to be several thousand dollars.

Kinston, N. C.—Kinston Mantle Co.'s factory; loss reported at \$30,000.

Mt. Olive, Miss.—J. W. Gentry's saw-mill and cotton gin; loss reported at \$3000.

Newport, Ark.—Weldon Gin Co.'s cotton gin.

Sedalia, Mo.—Sedalia Mill Co.'s flour mill; loss \$50,000.

Slidell, Texas.—Moore & Fleming's cotton gin; loss reported at \$4000.

Spartanburg, S. C.—A. S. Hendrix's cotton gin.

Tupelo, Miss.—Harley Handle Co.'s factory damaged to extent of \$5000.

BUILDING NOTES.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

Anniston, Ala.—Stables.—Donahoe & Co. have awarded contract to J. H. Duke for the erection of stable 90x250 feet, to cost \$10,000.

Anniston, Ala.—Restaurant.—George K. Jebeles has let contract to Thomas Wolsenroff for the erection of cafe and restaurant to cost \$5000.

Atlanta, Ga.—Armory.—The Gate City Guards will build an armory to cost about \$35,000. Address care of Col. Clifford L. Anderson.

Atlanta, Ga.—Office Building.—Asa G. Candler, reported last week, will organize the Candler Investment Co. to build either an office building or a department store building costing about \$500,000. Site has been purchased. George E. Murphy will doubtless be the architect in charge of construction.

Baltimore, Md.—Residence.—M. S. Thannhauser will build residence to cost \$13,000, after plans by Wm. H. Hodges, and the bidders have been named.

Baltimore, Md.—Parsonage.—St. Stanislaus Church will build a parsonage three stories high, of brick, 110 feet deep, with modern improvements, after plans by Baldwin & Pennington. The bidders have been named.

Birmingham, Ala.—Warehouse.—E. C. Bowman's warehouse, to cost \$14,000, reported last week, is now being constructed by E. C. Bowman & Co., contractors. J. B. Carr & Co. are the architects.

Cartersville, Ga.—Warehouse.—Knight Hardware Co. will build warehouse.

Columbia, S. C.—Hospital.—Roman Catholic Church will build a hospital to cost \$7000, plans and specifications for which are now being prepared. Rev. H. B. Northrop, bishop, Charleston, S. C., can be addressed.

Cordele, Ga.—School Building.—City has awarded contract to Little & Phillips of Fitzgerald, Ga., for erection of \$20,000 school.

Dallas, Texas—Church.—Washington Avenue Baptist Church has received plans and specifications for construction of proposed edifice to cost \$25,000. G. W. McDaniel is pastor.

Demopolis, Ala.—Bank Building.—First National Bank has purchased site for erection of bank building.

Greenville, Miss.—Clubhouse.—The Olympia Club intends to expend about \$15,000 for

erecting clubhouse reported last week. Steam heat will be installed.

Houston, Texas—Church.—Second Presbyterian Church has awarded contract to C. C. Wenzel for erection of edifice to cost \$17,500.

Jackson, Miss.—Hotel.—Jackson Hotel Co. has let contract to F. J. McGraw of Vicksburg, Miss., at \$71,143 for erection of hotel previously mentioned.

Jasper, Texas—Jail.—County has awarded contract for erection of proposed jail to the Pauly Jail Co. of St. Louis, Mo., at \$9450.

Kansas City, Mo.—Clubhouse.—Fraternal Order of Eagles, J. F. Pelletier, chairman, will expend \$30,000 to buy site and build clubhouse.

Knoxville, Tenn.—Engine-house.—City of Knoxville, Tenn., will open bids November 21 for erection of fire-department building after plans on file with Leon Beaver, architect. Address Board of Public Works.

Little Rock, Ark.—Association Building.—Y. M. C. A.'s proposed building, reported last week, will cost \$75,000, not \$25,000, as erroneously given. Structure will be three stories high, 80x150 feet, after plans by Architect Frank W. Gibb. Robert E. Walt is one of the directors.

Little Rock, Ark.—Asphalt Paving.—The city and county will expend about \$24,000 for asphalt paving. Address The Mayor.

Little Rock, Ark.—Hotel.—Dean Brothers, owners of New Baltimore Hotel, Kansas City, Mo., are consulting with George R. Mann, architect, Little Rock, in regard to building a hotel in Little Rock.

Little Rock, Ark.—Residence.—George C. Lewis of Stuttgart, Ark., will build a \$12,000 residence at Little Rock.

Little Rock, Ark.—Sanitarium.—The Red Cross Sanitarium will erect a \$20,000 building. Address care of Dr. Lane.

Louisville, Ky.—Hospital.—Jewish Hospital Association has permit for erecting its hospital 59x89 feet, three stories, of brick and iron, to cost \$20,000. D. X. Murphy & Bro. are the architects.

Memphis, Tenn.—Office Building.—Memphis Trust Co., John H. Watkins, manager, will erect 15-story office building to cost \$400,000, specifications for which have been prepared.

Meridian, Miss.—Business Building.—M. W. Wagner has let contract for erection of business building to cost \$30,000.

Moultrie, Ga.—Schoolhouse.—City contemplates building \$20,000 schoolhouse. Address The Mayor.

Nashville, Tenn.—Theater.—It is reported that Jake Wells of Richmond, Va., will build a \$50,000 theater in Nashville.

Nashville, Tenn.—Bank Building.—Fourth National Bank has engaged B. J. Hodge as architect in charge of erection of proposed bank building.

New Orleans, La.—Hotel.—St. Charles Hotel Co. will build a three-story addition upon completion of the 12-story annex now in course of erection.

New Orleans, La.—Railroad Docks.—Illinois Central has awarded contracts to J. W. Thompson of Jackson, Miss., at about \$25,000 for construction of an addition to the Stuyvesant Docks.

New Orleans, La.—Theater.—Henry Greenwald will build a theater to cost \$125,000.

Norfolk, Va.—Office Building.—Virginia-Carolina Trust Co. will erect office building to cost, with the bank fixtures, safes and vaults, about \$35,000; Neff & Thompson, architects in charge.

Prescott, Ark.—Postoffice Building.—Prescott Postoffice Building Co., reported incorporated last week, has let contract to Ed. F. Gee for erection of building 22x62 feet, to cost \$4000. Plans by Frank W. Gibb of Little Rock, Ark.

Richmond, Va.—Office Building.—Mutual Assurance Society of Virginia has received plans by Clinton & Russell of New York for construction of its proposed office building, to cost about \$750,000. Structure will be ten stories high, 100x150 feet, built of brick and stone, with steel framework and fireproofing.

Richmond, Va.—Hotel.—Mrs. E. Atkinson will build a 200-room addition to the Richmond Hotel, expending about \$75,000, this amount to include erecting and furnishing.

Selma, Ala.—Library.—Plans by Architect C. H. Hopson have been accepted for the proposed Carnegie Library, and bids for construction will soon be invited.

St. Louis, Mo.—Exposition Building.—John F. Barnes & Co. of Jackson, Miss., has contract at \$15,000 for the erection of the Mississippi building at the Louisiana Purchase Exposition.

Walnut Ridge, Ark.—Hotel.—Mrs. Lizzie Gerschner will build a hotel to cost \$20,000.

Warrensburg, Mo.—Gymnasium.—Warrensburg State Normal School has let contract to Moore Bros. of Kansas City at \$47,400 for erection of gymnasium, for which bids were invited last month.

Welleetka, I. T.—Hotel.—Bernard De Wattville and Charles De Wattville will organize company to build a hotel to cost \$10,000.

West Liberty, Ky.—Hotel.—S. W. Cecil will build a hotel.

West Palm Beach, Fla.—Business Block.—George Zapf will erect a brick business block 44x66 feet.

RAILROAD CONSTRUCTION.

Railways.

Alexandria, La.—The Enterprise Lumber Co. is reported to be building a 14-mile tramway to connect with the St. Louis, Iron Mountain & Southern Railroad.

Atlanta, Ga.—The Atlanta & West Point Railroad and Western Railway of Alabama will, it is reported, enlarge the yards at Montgomery, Ala. C. A. Wickersham is president and general manager at Atlanta.

Baltimore, Md.—The report that the Baltimore & Ohio Railroad had made a survey from a point near Glenwood, on the Ohio river division, through to coal fields in Logan and Wyoming counties is officially denied. An officer of the company further says that no such proposition has been considered, and it is not probable that any new construction will soon be undertaken on the system.

Baltimore, Md.—Vandevanter & Hood, civil engineers, inform the Manufacturers' Record that the contract for constructing the first four miles of the Baltimore & Belair Electric Railway from Hamilton to Carney has been let to William E. Anderson of Baltimore.

Beaumont, Texas.—Mr. R. C. Welles, general manager of the Beaumont & Sour Lake Construction Co., Keith Building, writes the Manufacturers' Record that the electric railway from Beaumont to Sour Lake, 29.5 miles, will be completed and in operation by the end of next month. It is expected by that time to let contracts for building twelve miles more from Beaumont to Saratoga and 13.5 miles from Beaumont to Port Arthur, the latter to be completed next year, making a total of fifty-one miles for the system.

Binghamton, N. Y.—Mr. M. S. Squires, president of the Dalton & Alaculsky Railroad Co. of Dalton, Ga., informs the Manufacturers' Record that the line is entirely graded from Dalton, where it connects with the Southern Railway and the Western & Atlantic Railroad, to Crandall, Murray county, Georgia, twenty miles. Practically all the ties are delivered along the route, and it is expected to have the road in operation next spring.

Blackstone, Va.—Reported that G. W. Brill of Pennsylvania and others will build a railway from Ford's Depot, on the Norfolk & Western Railway, to timber lands owned by them in Dinwiddie county.

Bloomington, Md.—Reported that S. C. Bond of Dubois & Bond Bros., lumber manufacturers, and J. Henry Beadle of Pennsylvania are interested in the Rockcastle Mining, Lumber & Ore Co. of Jackson county, Kentucky, and will build a 25-mile railroad there.

Bristol, Tenn.—Mr. John B. Newton, vice-president and general manager of the Virginia & Southwestern Railway Co., writes the Manufacturers' Record concerning the report that the company may build extensions from Elizabethton to Okaloona, eight miles, and also from Elkannah to Johnson City, eighteen miles. He says that the company has not seriously considered the proposition to build any extensions.

Cedar Grove, W. Va.—Mr. J. W. Dawson, general manager Kelly's Creek & Northwestern Railroad, writes the Manufacturers' Record that the line which was chartered last spring to build from Cedar Grove, on the Kanawha & Michigan Railway, to Sutton, W. Va., has completed about four miles of line, and has put it in operation. Construction will be resumed next spring. The officers are F. M. Staunton, president, Charleston, W. Va.; Charles W. Ward, vice-president, Queens, N. Y.; H. B. Smith, secretary, Charleston, W. Va.; J. W. Dawson, general manager, Cedar Grove, W. Va.

Chunkey Station, Miss.—The Meehan-Rounds Lumber Co. informs the Manufacturers' Record that it expects to build an extension of the Tallahatta Railroad as far as Battleground, Miss. The road now extends from Meehan Junction, on the Alabama & Vicksburg Railway, twelve miles northwest, and an extension of a very few miles will bring it to Battleground. There are four miles of branches.

Cincinnati, Ohio.—The Harriman & North-eastern Railroad is reported to be making surveys for possible extensions to coal mine in Morgan county, Tennessee. G. B. Nicholson is chief engineer.

Covington, La.—The East Louisiana Railroad has been extended seven miles north and a station established at Red Bluff.

Dallas, Texas.—Reported that the Texas & Pacific Railway will build a branch from New Iberia, La., along the Teche to Alexandria, La., about 100 miles. B. S. Wathen is chief engineer at Dallas.

Danville, Va.—The Southern Railway is reported to have begun construction on its proposed additional yard facilities. Nine tracks are to be constructed near the Danville & Western station.

El Reno, O. T.—Mr. H. A. Genung, chief engineer of the St. Louis, El Reno & Western Railway, writes the Manufacturers' Record that the line is graded from Guthrie to El Reno, forty-two miles, and that tracklaying begins November 16. It is proposed to lay one mile per day. The line runs through Navina, Lockridge, Piedmont and Richland.

Fredericksburg, Va.—B. J. Wood, county treasurer of Rappahannock county, is reported elected president of the Fredericksburg & Rappahannock Railway Co. C. J. Rixey and John J. Miller are also said to be interested. Individual stock subscriptions amounting to \$45,000 are reported.

Galveston, Texas.—Hugh Burns of Taylor, Texas, has begun work on the construction of the Saratoga branch of the Gulf, Colorado & Santa Fe Railway from Bragg to Saratoga, ten miles.

Hampton, Va.—Reported that the Newport News & Old Point Railway & Electric Co. will build an extension to Yorktown, Va. H. H. Carr is general manager.

Humboldt, Tenn.—The Tennessee Western Railroad Co., which proposes to build from Humboldt to Dyersburg, forty-two miles, is making its permanent survey, and it is stated work will begin next spring. W. H. Skivington is president, and J. L. Nichols, secretary, both of Pittsburg, Pa., and I. H. Duncan of Humboldt is treasurer.

Jonesboro, Ark.—Mr. Ed. L. Westbrook, general manager of the Jonesboro, Newport & Western Railroad, writes the Manufacturers' Record that the right of way is now being cleared for the line, and it is hoped to have fifteen miles in operation by May 1 next.

Lawton, O. T.—E. F. Mitchell, vice-president and general manager of the Lawton, Wichita Mountains & Western Electric Railway Co., is quoted as saying that the line proposed is from Lawton to Lone Wolf, seventy-five miles. The preliminary survey has been made and location has been completed for about six miles. The right of way has been bought and paid for from the east line of the government forest reservation to Lawton. Construction is to begin in about three weeks.

Lexington, Va.—The Rockbridge Lime & Stone Co. is reported to be making a survey for a tramway one mile long to connect its works with the Lexington railroad station. R. A. Marr is engineer.

McMinnville, Tenn.—J. H. McKittrick is reported as saying that a contract has been let to a construction company of Columbus, Ohio, to build the proposed McMinnville, Woodbury & Nashville Electric Railway.

Mexico, Mo.—Reported that an electric line 100 miles long will be built from Mexico, Mo., to Memphis, Tenn., via Paris, Shelbyville, Shelby and other towns. The headquarters will be in Mexico. Capitalists of Missouri and of the cities of New York and Boston are said to be interested.

Mexico, Mo.—Reported that tracklaying will soon begin on the Burlington cut-off between Mexico and Old Monroe, most of the grading being finished.

Mobile, Ala.—T. W. Nicol, chief engineer Apalachicola & Northern Railway, is reported as saying that a survey for the line has been made from River Junction to Apalachicola, all in Florida, and that construction will soon begin. It will connect with the Louisville & Nashville.

Moundsville, W. Va.—The Glen Easton Coal & Coke Co., 407 Keystone Bank Building, Pittsburg, Pa., informs the Manufacturers' Record that it proposes to build a double-track steam railroad from Moundsville to Wheeling, eleven miles, to connect with the Wheeling & Lake Erie division of the Wabash Railroad. Plans are also under consideration to ultimately extend the same road from Moundsville to Glen Easton, about ten miles, and thence to Farmington and the Fairmont coal fields, about thirty miles further. Ernest Breisch is engineer in charge at Moundsville.

Norfolk, Va.—Reported that the Chesapeake Transit Co. will double-track its trolley line from Norfolk to Cape Henry and Virginia Beach.

Parkersburg, W. Va.—The Parkersburg & Ohio Valley Electric Railway Co. has decided to institute condemnation suits wherever necessary to secure rights of way between St. Mary's and Sistersville, and the engineers have been instructed to make plans and specifications for that section of the line. V. B. Archer of Parkersburg and others are interested.

Pittsburg, Pa.—President Joseph A. West of the Wellsburg & State Line Railroad Co., 601 Keystone Building, Pittsburg, Pa., writes the Manufacturers' Record that about two and one-half miles of grading have been completed from Wellsburg, W. Va., to the mouth of Titts run and are ready for the ties and rails, which are on the ground. The owners of the railroad also own the Wellsburg Coal Co., the mine being at the mouth of Titts run. The plan is to extend the line to Dundsfirth, about twelve miles from Wellsburg, on the Pennsylvania boundary, whence it will be extended under the name of the Washington & State Line Railroad to Little Washington, Pa., fifteen miles; total length twenty-seven miles. Work on the road will be pushed as rapidly as possible.

New Orleans, La.—Mr. F. F. Myles, 100 Common street, writes the Manufacturers' Record concerning the Teche Electric Railroad saying: "We expect to build fifty-five miles of road from New Iberia along the banks of the Bayou Teche to Berwick City, opposite Morgan City. I anticipate to get to work on it during the next year."

New Orleans, La.—Henry Russell, who, with M. V. Sickly and others, is interested in the plan to build an electric railway from Hazlehurst, Miss., is reported as saying that Eastern capitalists who desire to become interested in the proposed construction will shortly be conferred with. The line proposed is to run to Gallatin, Browns Wells, Barlow, Mizpah and Willing, and thence back via Gallatin to Hazlehurst, forming a loop. J. M. Coen of Mizpah, R. P. Willing of Hazlehurst and others have been active in promoting the project. The entire rights of way are said to have been obtained.

Pensacola, Fla.—J. W. Mercer and a party of engineers have begun a survey for the proposed Memphis & Gulf Railroad.

Richmond, Ind.—President W. A. Bradford, Jr., of the Chicago, Cincinnati & Louisville Railroad, is reported as saying that an extension will be built immediately from Cincinnati to Louisville along the Ohio river.

Rogers, Ark.—Reported that Judge Conable will build an electric railway from Rogers to develop 20,000 acres of land recently purchased by him, and also to go to Bentonville.

Shryock, W. Va.—Daniel O'Connell, contractor, has completed laying track on a two-and-one-quarter-mile extension of the main line of the Iron Mountain & Greenbrier Railway, and is now building branches for taking out timber.

Sparta, Ill.—The Illinois Southern Railway has, it is reported, bought out the Southern Missouri Railway Co., chartered to build a line from St. Genevieve, Mo., to Bismarck, Mo., about twenty-five miles, and will build the line. G. P. Paridis is engineer maintenance of way at Sparta.

Sweetwater, Texas.—The Interstate Construction Co., capital \$250,000, has filed its charter. The incorporators are Charles N. Atkinson, Edwin H. Holcomb, Frank C. Allen, R. L. McAuley and H. C. Hord. Mr. Hord is general attorney for the Kansas City, Mexico & Orient Railway, and the company, it is reported, is chartered to build the Orient's line from Sweetwater to the Mexican boundary.

Sutton, W. Va.—Reported that a railroad about ten miles long will be built to connect with the Baltimore & Ohio at Welch Glade to develop the Birch Mountain coal.

Topeka, Kan.—The Kansas City Belt Line is reported to have under consideration a plan for building a new passenger terminal at Twenty-second street and Grand avenue, Kansas City, Mo. C. A. Morse is acting chief engineer at Topeka, Kan. Mr. Morse informs the Manufacturers' Record that nothing is definitely decided regarding improvements for Kansas City. The question of building a new union depot and its location is apparently no nearer settled than it was a year ago.

Tuscaloosa, Ala.—The Tuscaloosa Belt Railway is reported to be negotiating for rights of way to build an extension to Holton, five miles north of the city. F. W. Monish is superintendent.

Vicksburg, Miss.—L. Burns, Jr., and J. J.

Lum will, it is reported, build a logging railroad twelve miles long in the northeastern part of Louisiana to connect with the Memphis, Helena & Louisiana line of the Gould system.

Washington, D. C.—About seven miles of line for the Great Falls & Old Dominion Railway are reported staked out on the Virginia side of the Potomac. Robert D. Weaver is president.

Washington, D. C.—Mr. W. H. Wells, engineer of construction Southern Railway, informs the Manufacturers' Record that construction of the Badham spur is now being started from the Southern's line near Daley, Ala., and running west along Savage creek about four miles. It is being built jointly by the Southern Railway and the Louisville & Nashville Railroad. W. J. Oliver of Knoxville, Tenn., is the contractor, and it is to be completed about April next.

Washington, D. C.—An officer of the Southern Railway informs the Manufacturers' Record that on the Carolina & Tennessee Southern Railway, a new line projected from Bushnell, N. C., in a westerly direction to the boundary between Tennessee and North Carolina, forces are now employed. The line runs along the north bank of the Tennessee river for a distance of twenty-five miles. On the western side of the boundary the same line is continued under the name of the Tennessee & Carolina Southern Railway from the State boundary along the Tennessee river twenty miles to Citico creek. W. J. Oliver of Knoxville is the contractor.

Street Railways.

Fayetteville, Ark.—William B. Stuart of Chicago has been granted a street-railway franchise.

Houston, Texas.—The Houston Electric Co. has been granted a franchise to extend its line through the proposed Preston-aveane tunnel.

Monroe, La.—The city authorities will, it is stated, push forward the construction of a belt line electric street railway, and it is reported that the Westinghouse Electric Co. is preparing to do preliminary work.

Nashville, Tenn.—The Nashville Railway Co. will, it is reported, lay a new track on Jo Johnston avenue. A number of other improvements are under way and in contemplation.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Air Compressor.—Fidelity Machine & Metal Co., 1406 Washington avenue, Philadelphia, Pa., is in the market for an air compressor.

Asphalt Plant.—National Asphalt & Mineral Co., E. Ryan, general superintendent, 1006 Chestnut street, St. Louis, Mo., wants asphalt machinery for mining, manufacturing and paving, to include jaw crusher, two pulverizers, asphalt mixer, 40-horse-power engine, 50-horse-power boiler, asphalt heaters, four-ton steam roller, six-ton roller tamper, smoothers, fire wagons and all tools for paving work. Company also wants an equipment to have sand asphalt and rock asphalt mixed by being run through a cylindrical heating machine containing revolving arms which take up the material as it is put in the heating machine and move it gradually to the other end of the cylinder, where the material is dropped into wagons, this cylinder to be heated by hot air forced from a brick furnace by fan so as to give uniform heat to the material without burning it; this machine must heat enough material to lay 1000 square yards per day.

Automobile Running Gears.—Florida Automobile Co., 132 E. Bay street, wants prices on automobile engines, transmission running gear and electrical supplies.

Bank Vaults.—County commissioners, Clinton, N. C., will build two vaults, each 20x25 feet, plans and specifications of which will be submitted December 7. R. A. Ingram, clerk of court, can give information.

Barrel Packer.—Imperial Paint Mill, 421

Chalfoux Building, Birmingham, Ala., is in the market for a second-hand barrel packer.

Beacons.—Bids will be opened December 8 at office of lighthouse engineer, Capt. W. E. Craighill, engineer, Mobile, Ala., for furnishing materials and constructing beacons at newly dredged channel entrance to Trinity river, Texas. Blank proposals and other information on request.

Boiler.—J. W. Tuck, Winterville, Ga., will want a 75-horse-power boiler.

Boiler.—J. F. Smith, Box 611, Dublin, Ga., wants prices and description of 15-horse-power boiler, new or second-hand.

Bottles.—See "Medicine-factory Supplies."

Bowling Alley.—Y. M. C. A., W. P. Kimes, secretary, Pine Bluff, Ark., will want to contract for bowling alley.

Brick Machinery.—J. W. Murray, Burlington, N. C., wants to correspond with manufacturers of brick machinery.

Bridge.—Bids will be opened December 14 for construction of protection work for railway and traffic bridge across Red river, as per plans approved by War Department. Copies of plans on file with United States engineer, Vicksburg, Miss., and with president of Natchitoches parish police jury, G. W. Kelle, president, Natchitoches, La.

Briquetting Machinery.—Willis J. Roussel, 708 Royal street, New Orleans, La., wants to correspond with manufacturers of briquetting machinery.

Building Material.—J. F. Barnes & Co., Jackson, Miss., want prices on lumber, shingles, factory work, paint and gas logs.

Button-making Machinery.—See "Pearl-button Machinery."

Canning Machinery.—John H. Murphy, 633 Magazine street, New Orleans, La., wants price-list and full information on canning machinery.

Charcoal Machinery.—See "Wood By-product Machinery."

Clayworking Machinery.—See "Pottery Equipment."

Converting Systems.—See "Plantation Machinery, Equipment, etc."

Cotton Gin.—J. W. Tuck, Winterville, Ga., will want complete cotton-gin outfit and a 75-horse-power boiler.

Cotton Ginnery.—Stinson Gin Co., Stinson, Ga., wants prices on four 70-saw cotton ginnery, complete with belts, shafting, etc.; also on roofing and tanks.

Cotton Ginnery.—R. S. Farham, Greenville, Ga., wants four-stand 70-saw cotton-gin outfit.

Cotton Ginnery.—W. G. Hall, Rossville, O. T., wants prices on two-stand 70-saw cotton ginnery, with shafting, pulleys, etc.

Cotton-twine Machinery.—The Mayor, Stillshoro, Ga., wants information and prices on machinery for manufacturing common cotton rope and twine.

Crushers, Pulverizers, etc.—See "Asphalt Plant."

Curing Moss Processes.—See "Moss-curing Machinery."

Dust Collectors.—Imperial Paint Mill, 421 Chalfoux Building, Birmingham, Ala., is in the market for 30 or 36-inch fan to be used as dust collector in paint mill; new or second-hand; send full description and price delivered in Birmingham.

Electrical Machinery.—Rock Hill Buggy Co., Rock Hill, S. C., wants to buy 60-kilowatt electric generator, D. C. current, 125 volts; second-hand will answer.

Electrical Machinery.—See "Plantation Machinery, Equipment, etc."

Electrical Supplies.—See "Automobile Running Gears."

Engine and Boiler.—Drexel Furniture Co., Drexel, N. C., wants prices on 125-horse-power boiler and 100-horse-power engine.

Engine and Boiler.—J. W. Minor, Ronda, N. C., wants prices on 25 to 30-horse-power horizontal engine and 25 to 40-horse-power tubular boiler, second-hand.

Engine and Boiler.—See "Asphalt Plant."

Engine and Boiler.—Aberdeen Button Manufacturing Co., Aberdeen, Miss., wants a 40-horse-power engine and 50-horse-power boiler.

Engine, etc.—White Gin & Cotton Co., Lancaster, Texas, wants prices on 70-horse-power engine, heater and pumps.

Engines and Boilers.—Anthracite Machinery & Supply Co., Allentown, Pa., wants six 150 and 125-horse-power, two 100-horse-power horizontal return tubular boilers, complete with stack, high-pressure and tank pumps; 300-horse-power vertical water-tube boilers or two of 250-horse-power, wood and iron tanks, pipe, wire cables 1½ and up in diameter, rails, also vertical boilers and engines

from 4 to 25-horse-power; all to be second-hand in good condition.

Engine Builders.—Union Iron Works Co., Selma, Ala., wants to correspond with foundrymen who make cast-steel crankshafts for engines.

Engines.—See "Automobile Running Gears."

Exhaust System.—See "Dust Collectors."

Extracting Equipment.—See "Wood By-product Machinery."

Fiber-working Machinery.—See "Paper-fiber Machinery."

Fire-department Equipment.—The mayor, Lake Charles, La., is prepared to receive catalogues and information concerning equipment for fire department.

Flour Mills.—See "Plantation Machinery, Equipment, etc."

Foundrymen.—See "Engine Builders."

Gas Fixtures.—J. F. Barnes & Co., Jackson, Miss., want prices on gas logs.

Gasoline Launches.—See "Plantation Machinery, Equipment, etc."

Heating Equipment.—Y. M. C. A., W. P. Kimes, secretary, Pine Bluff, Ark., wants prices on hot water heating equipment.

Laundry Equipment.—Eugene Nisbet, Florida, Ala., wants estimates on equipment of steam laundry for town of 6000.

Machine Shops.—See "Plantation Machinery, Equipment, etc."

Machine Tools.—Virginia Machine Co., Waynesboro, Va., is in the market for an 84-inch to 14-foot boring mill and a 44 to 54-inch planer, open side preferred, second-hand.

Machine Tools.—Dublin Wagon & Machine Co., Dublin, Ga., wants prices and description on small power punch and shear for wagon factory.

Medicine-factory Supplies.—Long Life Remedy Co., Anniston, Ala., is in the market for a large quantity of bottles and printing.

Mill Supplies.—See "Cotton Ginnery."

Mill Supplies.—See "Cotton Ginnery."

Mining Machinery.—See "Asphalt Plant."

Moss-curing Machinery.—J. C. De Lettre, Wewabitchka, Fla., wants information on machinery to prepare moss for market and the process used in curing same.

Paper-Fiber Machinery.—Charles R. Fife, 200 Railway Exchange Building, St. Louis, Mo., wants to correspond with manufacturers of machinery and process of converting the fiber of a hard, knotted and crooked wood into paper at a minimum cost.

Paving Equipments.—See "Asphalt Plant."

Paving Improvements.—Bids will be opened November 19 for furnishing and setting granite curbing, about 30,500 feet. Forms of proposals, plans, etc., at office of local board of improvement, R. W. Tomlin, treasurer, Main street, Norfolk, Va.

Pearl-button Machinery.—Aberdeen Button Manufacturing Co., Aberdeen, Miss., is ready to let contract for equipment to manufacture pearl buttons; can also use a 40-horse-power engine and 50-horse-power boiler.

Planing Mill.—W. E. Register Lumber Co., Clinton, N. C., wants prices on complete equipment for planing mill and dry-kiln of 10,000 feet capacity daily.

Plantation Machinery, Equipment, etc.—Jesse H. Perault, 291 Twenty-fifth street, Detroit, Mich., wants to hear from manufacturers as would include the following: Steam transportation line from Honduras to New Orleans, coastwise steamers, about fourteen miles railroad (from plantation to seacoast), conveying system, saw-mills, flour mills, machine shops, gasoline launches, electric water-power plant, etc.

Pottery Equipment.—E. A. Poe, Fayetteville, N. C., is in the market for machinery for flower pot and stove thimble manufacturing.

Power-transmission Devices.—Macon Machine Shop, Fourth and Plum streets, Macon, Ga., wants to correspond with manufacturers of the Evans variable speed cones and other similar devices for the transmission of power at variable speeds.

Printing.—See "Medicine-factory Supplies."

Quarrying Proposals.—Dominion Iron & Steel Co., Sidney, Nova Scotia, Canada, will open bids December 15 for quarrying, crushing and delivering f. o. b. vessel 200,000 to 400,000 tons of limestone per year, to be taken from quarries of company at Cape Breton, as per specifications. Specifications can be seen at office, together with blueprint and photographs showing quarry and plant; contract to be for three years; usual bond required; David Baker, general manager.

Railway Equipment.—See "Plantation Machinery, Equipment, etc."

Railway Equipment.—Blasingame & Morgan Lumber Co., Moultrie, Ga., wants small locomotive and ten miles of rails.

Roofing.—See "Cotton Ginnery."

Rubber-manufacturing Machinery.—Wm. D. Dow, 1925 Esplanade avenue, New Orleans, La., wants information in regard to the manufacture of rubber goods from the crude rubber and particulars as to machinery required.

Ruching and Tucking Machines.—See "Sewing Machines."

Sand Washer.—See "Washing Plant."

Saw-mills.—See "Plantation Machinery, Equipment, etc."

Sewing Machines.—Delmar Manufacturing Co., 3106 Thomas street, St. Louis, Mo., wants prices on machines for ruching and tucking for baby caps.

Steamships.—See "Plantation Machinery, Equipment, etc."

Tanks.—See "Cotton Ginnery."

Wagon-manufacturing Tools.—See "Machine Tools."

Washing Plant.—Thomas G. Brady, Clarks-

burg, W. Va., is in the market for a sand washer of twenty to thirty tons capacity per hour.

Water-power Machinery.—See "Plantation Machinery, Equipment, etc."

Water-works.—Town of Tryon, N. C., wants estimates and bids on construction of water-works. Address The Mayor.

Well-drilling.—Crystal Ice Co., Bristol, Tenn., wants prices on drilling an artesian well.

Wood By-product Machinery.—Frank W. Street, care of Hotel Rueger, Richmond, Va., wants information and estimates on machinery for extracting all the marketable by-products of woods; also wants to buy carbonizer for quickly making charcoal from pine and hardwood.

Woodworking Machines.—J. W. Minor, Ronda, N. C., wants prices on second-hand planers, lath saws and band resaw.

Wood-pulp Machinery.—See "Paper-fiber Machinery."

Woodworking Machinery.—Quitman Machine Works, Quitman, Ga., wants planer and matcher 6x14, second-hand.

INDUSTRIAL NEWS OF INTEREST.

Buys a Vogt Machine.

R. W. Furnas Ice Cream Co. of Indianapolis, Ind., has let contract to the Henry Vogt Machine Co. of Louisville, Ky., for the installation of a 50-ton refrigerating machine.

Crocker-Wheeler at Atlanta.

The Crocker-Wheeler Company of Amper, N. J., has established headquarters for the Southern representative of its Washington office, S. M. Conant, at 425 Empire Building, Atlanta, Ga.

Messrs. Barr & Elam.

It is announced that Messrs. Barr & Elam of Greensboro, N. C., have dissolved their firm by mutual consent. W. E. Barr purchases the interest of C. M. Elam, and will continue acting as a general electrical contractor, electric and gas supplies, electric bells and burglar alarms, etc.

Chicago Offices for Triumph.

Electrical engineers and buyers of electric-light and power machinery are advised that the Triumph Electric Co. of Cincinnati, Ohio, well-known makers of the character of equipment noted, have established offices in Chicago. Modern accommodations have been secured in the Tribune Building.

Pine Land—300,000 Acres.

Parties in the market for pine lands can obtain information concerning valuable tracts by addressing Rhodes & Stimpson, 1102 Majestic Building, Detroit, Mich. This firm offers for sale at low prices 300,000 acres of pine in Mississippi, Louisiana, Florida and Canada. Several good coal and hardwood tracts are also offered.

To Represent Manufacturers.

Manufacturers who may want to be represented in Texas, Louisiana, Mississippi, Alabama and Georgia have an opportunity to make suitable arrangements with one who states he is thoroughly acquainted with the trade of those sections. Foundry supplies, railroad and boiler-makers' materials are preferred to be handled. Andre David, Hotel Hillman, Birmingham, Ala., can be addressed.

Special Bargains in Machinery.

Some special bargains in machinery—engines, dump cars, derricks, winches, cranes, rails, locomotives, etc.—are seen in the latest list of Willis Shaw. Mr. Shaw is a well-known dealer in all kinds of machinery and equipment, and has a large assortment ready for immediate shipment. If you are in the market for such materials you will be helped to obtain lowest prices by writing him; offices at 171 La Salle street, Chicago.

Superior Graphite Paint.

Good bridges require good paint—a paint that lasts. There is worth in a paint that shows no pits, scales or cracks ten years after application. There is economy in a paint that bids defiance to the winds, to the sulphurous fumes from locomotives and vessels, to rain and snow, to heat and cold. Superior Graphite Paint is claimed to be such a paint. It is manufactured by the Detroit Graphite Manufacturing Co., Detroit, Mich.

Ross-Meehan Foundry Co.

There is a steady demand for gray and malleable iron castings in the South, which is being largely met by manufacturers in that section. Those who require castings of

this character aim to obtain product of the highest grade offered by makers of established reputation. Among such makers is the Ross-Meehan Foundry Co. of Chattanooga, Tenn., which is prepared to submit estimates on receipt of requests and details regarding what is wanted.

The J. A. Street Company.

Buyers of railway equipment, milling machinery and other kinds of mechanical equipment now have available a new establishment from which to obtain prices. This has been organized for the purpose of furnishing new and second-hand locomotives, cars and rails, and will also open a department to handle milling machinery of all kinds. The J. A. Street Company is the title of the new organization, and its principal offices are located at Norfolk, Va. Postoffice address is Box 557.

Ocean Steamship Boilers.

The enormous steaming capacity required in boilers on the large ocean steamships can only be attained by means of artificial draft. The fan blower may be found in all these steamships supplying air to the boilers as "forced draft." The International Navigation Co.'s steamship St. Louis has eight new Sturtevant fans for this purpose, each one of which is driven by a Sturtevant compound engine. These fans and engines are manufactured by the B. F. Sturtevant Co. of Jamaica Plain, Mass.

Towing Under Difficulties.

The tug Samson, towing the coal-laden barge Washtuena from Ladysmith, B. C., to Portland, arrived at Astoria November 2. A severe storm was encountered off Cape Flattery, and 100 tons of the barge's deckload of coal was washed overboard, but the barge did not part, nor did the tug have to cast it off, as so often the case, nor did she have to lay to. Because of this fact it is worthy of note that the Samson is provided with a Shaw & Spiegle towing machine, manufactured by the American Ship Windlass Co. of Providence, R. I.

Cotton-Oil Mill for Sale.

It is announced that an opportunity has arisen for parties who think of investing in the Southern cottonseed-oil industry. This is comprised in the fact that a 70-ton cottonseed-oil mill equipped with modern machinery and including a valuable manufacturing site near South Norfolk, Va., will be offered to the highest bidder on December 2. This is the property of the McNally Manufacturing Oil Co. Further particulars can be obtained by addressing R. H. Draper, Jr., Geo. F. Fisher and John B. Jenkins, trustees, 66 Citizens' Bank Building, Norfolk.

Uncle Sam Likes Albany Grease.

The endorsement of Uncle Sam is a flattering tribute to genuine merit, and is only gained by deserving it. That the virtues of Albany Grease are fully appreciated by the United States authorities is evidenced in a letter recently received by the manufacturer, Messrs. Adam Cook's Sons, 313 West street, New York, from S. W. Stratton, director of the Department of Commerce and Labor Bureau of Standards, Washington, D. C. Under date of October 31, 1903, Mr. Stratton writes: "We are using Albany Grease in all instances where such compound can be used to advantage, and consequently are fully aware of its merits."

Patapsco Machinery & Supply Co.

Manufacturers and others who have occasion to contract for any kind of machine and foundry work are reminded that the Patapsco Machinery & Supply Co. of Baltimore, Md., has a complete establishment. This company has just been incorporated for \$25,000, with machine and foundry plant at 216-212 Patterson street, but the offices will be located at 419 E. Pratt street, where a commodious building has been leased. Charles Tyler is president; N. Rufus Gill, vice-president; Walter B. Tyler, general manager and treasurer, and F. Oscar Reuter (formerly of Reuter & Mallory), secretary.

Concrete Mixers.

Machinery for mixing concrete, also mortar and asphalt, comprises a class of mechanical equipment now offered buyers in improved form to give the best results. The extent to which concrete and asphalt enters in various kinds of construction work has created a steady demand for these mixers. The Drake Standard Machine Works has been very successful with the mixers which it builds. These machines are all patented and are made in more than thirty styles for different kinds of concrete work. Literature giving full details can be obtained by addressing the company at its offices, 298 W. Jackson Boulevard, Chicago.

New Ball Engine Works.

The success of the new medium speed Corliss engine recently brought out by the Ball Engine Co., Erie, Pa., has been so great that it was found necessary to greatly increase the capacity of its works. Entirely new works were determined upon, and an ideal location was selected. These works have been under construction during the past year, and the company has just moved into them. Although this was a large undertaking, it was accomplished without accident or any appreciable interruption of product. The new works are among the most modern in the country, well lighted and finely equipped, giving the Ball Engine Co. unequalled facilities and a very large capacity.

Water-Powers for Sale.

The existence of many water-powers in the South and their development to transmit energy by electricity is one of the strongest factors at present exhibited in the upbuilding of that section. In utilizing such properties power is furnished at such a low cost that manufacturing plants are naturally attracted and locate in their immediate vicinity. Two valuable powers are offered for sale by the Carthage Investment Co. of Carthage, N. C. These powers are on Deep river, one including 147 acres of land and the other four acres. It is stated that from 1000 to 1500 horse-power can be readily developed at either location, and that the sites are naturally advantageous for industrial purposes.

P. A. McCarthy, Engineer.

The diversity of engineering work in the South calls for the employment of many expert engineers. Civil and consulting engineers of established reputation find their time engaged in making examinations and reports and in planning power plants, bridges and other structures, water supply, sewerage and other municipal improvements, electric railways and lighting plants and other modern establishments. P. A. McCarthy of Decatur, Texas, is a civil and consulting engineer who has attained considerable reputation in his profession. Mr. McCarthy is prepared to undertake large or small contracts, and solicits correspondence from firms or companies who are in the field for that kind of service.

Cotton Mill for Sale.

Manufacturers or capitalists desirous of becoming interested in the Southern textile manufacturing industry are advised to note that an established plant is on the market. This property includes land, building and machinery of a modern plant for manufacturing cotton cloth, the textile machines including 2500 spindles and 75 looms. The owner is a co-operative company, with stocks so widely distributed that it is impracticable to obtain enough stockholders to agree to furnish additional capital to put the mill on a good paying basis. Buildings, equipment and accommodations for operatives permit of increasing to 5000 spindles and 150 looms. The Ouachita Cotton Mills, Monroe, La., is the enterprise in reference, and can be addressed for particulars.

Coal and Timber Lands.

There is no diminution in the activity displayed in the development of timber and coal lands, especially the latter, in the Birmingham district. Some valuable properties in that territory are at present on the mar-

ket, several of them being coal mines now in operation. One property, consisting of 13,000 acres with five veins of coal, is equipped with modern machinery and producing 6500 tons per month. Another property is producing 200 tons daily. One tract of 25,000 acres, both coal and timber, that has not been prospected is in the Warrior River coal field. Those who think of investing in these propositions are advised to address B. F. Eborn, 113 N. Twenty-first street, Birmingham, Ala. He also has other coal, mineral and timber propositions to offer purchasers.

New Words.

Do you know the meaning of khaki, kopje, biograph, eye-minded, commando, Bertillon system, cangue, crookes space, Marconi system? These and thousands of other words derived from the Spanish, Boer and Chinese wars and from scientific sources have come into use during the last ten years, and are found in the new and enlarged edition of Webster's International Dictionary, recently published under the editorship of Dr. W. T. Harris, United States commissioner of education. The International has the distinction of being the standard authority of the executive departments of the government, the government printing office, the United States Supreme Court, all the State supreme courts, etc.; in fact, it is universally used and commended everywhere as the standard authority on English words. It is published by the G. & C. Merriam Co., Springfield, Mass.

Cranes and Derricks.

Men who are active in the manufacturing and general industrial field often have occasion to utilize the important services performed by cranes and derricks. Many of them need such machines regularly to facilitate their operations, and consequently there is a steady demand for the most improved types of such apparatus. A specialist in cranes and derricks is Frank B. Stratford of 95-97 Liberty street, New York. He offers them revolving, self-propelling and stationary, floating or on wheels, built for all classes of work, for any capacity, for any radius, of any type to suit the buyer. Mr. Stratford has given satisfaction with these equipments to some of the most exacting buyers in the field, and is prepared to correspond with those who are in the market for any kind of cranes and derricks. Coal-handling, excavating, loading and unloading machinery are also specialties with him.

Separators for Spinning Frames.

One of the best-known makers of textile machinery is introducing a latest improved separator for spinning frames. This manufacturer has made a specialty of separators and applied over 10,000,000 of them. The Doyle separator was followed by the Chandler, which was better designed for the use of wide blades. There were, however, mechanical difficulties to be overcome which led to the development of a new type, and this has been introduced as the Rhodes-Chandler Separator. Nearly all mills that run high-speed spindles use separators, and it is not necessary to expatiate on their merits as a class. The new separator is manufactured by that well-known originator of textile equipment, the Draper Company of Hopedale, Mass. This company is also calling attention at this time to the Sullivan Shuttle Guard, which is a most simple and convenient device. Textile manufacturers who are unacquainted with the devices named are advised to send for details.

Making Taylor Tinplate.

The N. & G. Taylor Co. of Philadelphia, manufacturer of tinplate, is at present completing important improvements to its plants at Philadelphia and at Cumberland, Md. At Philadelphia have been added several new departments, including warehouses, storage-rooms, box factory and blacksmith shop, besides enlarging the tinhouse to give increased lighting and ventilating facilities. At Cumberland the new open-hearth furnaces have been completed and are in operation, together with new gas-producing equipment consisting of four Porter Miller producers in addition to the old capacity. A spacious new warehouse has been completed to provide for increased business in blue annealed sheets, gauges 6 to 16; new annealing furnaces are being built for the black-plate department to increase capacity for black plates for tinning purposes. The company has recently furnished its Columbia brand of tin for covering a number of buildings at the Louisiana Purchase Exposition in St. Louis.

Electricity for Cotton Mills.

The tendency of Southern cotton mills to make every available use of electricity in their establishments is emphasized by sev-

eral contracts just secured by the S. B. Alexander, Jr., Co. of Charlotte, N. C. This well-known electrical contractor is to equip the Fort Mill (S. C.) Manufacturing Co.'s plant with an electric drive, the machinery to include a 150-horse-power induction motor, two 75-horse-power, two 30-horse-power and 40-horse-power induction motors. The Alexander Company will also supply the Millfort Mill Co., Fort Mill, S. C., with a 200 and a 100-horse-power induction motor, this equipment including all transformers, switchboards, lightning arresters and complete installation; the Lancaster (S. C.) Cotton Mills with induction motors of 100, 150 and 200 horse-power. The apparatus to be furnished is of Westinghouse Electric Manufacturing Co. make. Circuit power for the two mills at Fort Mill will be furnished by the Catawba Power Co. and for the motors at Lancaster by the generators in the Lancaster Cotton Mills.

Well-Drilling Specialists.

For obtaining water supply and for various other purposes the drilling of wells is often necessary. Sinking wells would seem to be a simple proposition, but experienced men in this character of work have found that it requires the specialist in order that the highest degree of satisfaction shall be obtained. There are many difficulties to be met with in drilling that the specialist overcomes very readily because of his experience and readiness to meet possible obstacles. The Hughes Specialty Well Drilling Co. of Charleston, S. C., is one of the most successful workers in this field. It has for some years, as its title indicates, been making a specialty of well-drilling, and has done so to the great satisfaction of the many for whom contracts have been completed. The company has just secured an order to sink an eight-inch well 600 feet deep for the Phoenix Ice Co. of Florence, S. C., and has completed contract at Fort Moultrie, S. C., for an eight-inch well 500 feet deep. The government contemplates further sinking of the latter well, and it is said will award the contract to Hughes.

Foreign Engine Users.

A factor of which American manufacturers and engineers may feel proud is the wide usage attained by machinery designed and built in the United States. There is scarcely a country on the face of the globe wherein American machinery or manufactures of some kind are not found. Foreign users of engines particularly have been ready buyers of American power machinery. These thoughts are suggested by a list of foreign users of engines built by the Allis-Chalmers Company of Chicago. This company is known throughout the world for its Corliss pumping, hoisting, compressing and blowing engines. Thousands of these engines have been built and are now in use in the following countries: Alaska, Australia, Austria, Canada, Central America, China, Cuba, England, France, Germany, Hawaiian Islands, Ireland, Japan, Korea, Mexico, New Zealand, Porto Rico, Russia, Scotland, Siam, South Africa, South America, Spain and Tasmania. This list of countries certainly covers the civilized world and quite a portion of that which is termed civilized more by courtesy than from strict truth. The Allis-Chalmers Company's general offices are in the New York Life Building, Chicago. It issues an illustrated booklet giving a partial list of users of its engines in the countries indicated.

Cant-Hook vs. Steam.

There are some recent improvements in saw-mill machinery that interest the owner of the portable mill. Before the introduction of the steam log turner in its practical application to the portable saw-mill, the owner of such a rig worked at a very serious disadvantage as compared with the larger mill and its labor-saving devices. There has been one cause of wasted time and labor in the operation of the portable mill that has heretofore been unavoidable. This was the necessity of waiting at every occasion for turning the log on the carriage while anywhere from one to three men "wrestled" it over with cant-hooks. In the meantime the engine was running idle. However, the perfection of a really practical log turner has been accomplished by the A. B. Farquhar Co., maker of the celebrated Farquhar portable mills and the Ajax center-crank engines. This is claimed to be the only device of its kind that can be used with a portable mill. By increasing the daily output without the necessity for an increase of power and at an actual decrease in operating expenses, it very materially swells the net profits. Any mill man interested in the most recent and up-to-date improvements in engines and saw-mill machinery should write the A. B. Far-

quhar Co., Ltd., York, Pa., for further information and free catalogue. It pays well to keep posted.

Recent Wolf Contracts.

The continuance of a steady and large demand for the flour and other grain milling machinery made by the Wolf Company, manufacturers at Chambersburg, Pa., is seen in the new list of recent contracts closed by the export and Atlantic coast department of that company at 804 Pennsylvania Building, Philadelphia. The orders were as follows: From Wilbur M. Smith, Reliance, Md., complete 25 to 35-barrel gyrator mill to be driven by gasoline engine; J. H. Beauchamp, Linchester, Md., remodel 50-barrel mill to the gyrator system; John Hell, Hanover, Pa., to furnish one No. 3 20-sieve gyrator and other machinery to increase capacity of mill to thirty-five barrels; E. Bollinger, Hanover, Pa., one No. 3 20-sieve gyrator and other machinery to remodel and increase capacity of mill; Scarborough & Montgomery, Whiteford, Md., for roller machine, flour dresser and mill supplies to increase capacity of mill to forty barrels; E. S. Garrison, Cheswold, Del., one No. 3 40-sieve gyrator, redressing rolls, new elevators and mill supplies to increase capacity of mill fifty to sixty barrels; Spencer Hibbs, Hulmeville, Pa., power transmitting machinery and feed reels; Smith, Kline & French, Philadelphia, Pa., one 30-inch double-gear French burr mill; Bell & Co., Hurlock, Md., one No. 2 Eclipse steel-frame hominy mill, and Collins & Sons, Moorestown, N. J., one Mammoth adjustable corn and cob crusher. The Philadelphia office also sold a gyrator for bolting tale, a size F-21 Wolf-Draver dust collector and exhaust fan for removing dust from tale mill, also a lot of pulleys and mill supplies.

Concerning Good Roofing.

When one builds a mill, the roof is a poor place to economize on. The fact must not be overlooked that although the roof is not thought about or seen every day, it is one of the most important parts of the whole building. A leaky roof will cause more damage, expense, profanity and annoyance than almost any other part of a mill that can go wrong. How much better it is, therefore, to put on a good roof to begin with, which will last and give satisfaction, saving the expense of continual renewal, than to economize on the first expenditure and put on a cheap roofing which will not give satisfaction and will cause continual expense for repairs. "Flintkote" roofing has been used on hundreds of mills from Canada to the Gulf of Mexico, and from the Pacific to the Atlantic. It is made of the best quality of wool felt obtainable, thoroughly saturated with compounds which contain no tar; there is therefore nothing in its composition to become brittle and hard in winter, or cause it to soften and run with the heat in the summer time. It is one of the greatest fire-resisting roofings that has ever been put on the market, and is endorsed by fire underwriters throughout the country. "Flintkote" was specified for buildings of the St. Louis Exposition, where over forty-five carloads will be used. Some idea of the magnitude of this order can be comprehended by saying that 3,000,000 square feet of roofing will be used, and that if the roofing was piled one roll on top of another it would extend over eleven miles into the air, and if the rolls were unrolled and one strip laid after another it would extend over 260 miles. The largest fertilizer companies and cotton-oil companies are using "Flintkote" roofing on their buildings. So are cotton and other manufacturers of all descriptions throughout the United States. If you contemplate using any roofing, correspond with Messrs. J. A. & W. Bird & Co., 34 India street, Boston, Mass., and obtain full information in regard to "Flintkote," as they certainly have an article which is worth the most careful consideration.

TRADE LITERATURE.**Tirrell Incandescent Burners.**

Dealers in improved gas equipments, burners, etc., will find timely data in a brief leaflet of information issued by the Tirrell Gas Machine Lighting Co., 441 Broadway, New York. This publication describes and prices the Tirrell incandescent burners, mantels, globes and shades and other latest improved devices especially designed and patented and introduced with great success by this company throughout the United States.

New Spooling Devices.

Textile manufacturers should not fail to write the Draper Company of Hopedale, Mass., for a copy of "Cotton Chats" No. 21. This leaflet tells about new spooling devices which the company is introducing. For

years the Draper Company has been endeavoring to secure some radical improvement in the method of spooling cotton yarn. After continued experiments and the abandonment of many intermediate mechanisms, the new Rhondes Bobbin Holder is presented with considerable confidence.

An Instructive Souvenir.

An interesting and instructive souvenir was presented to the members of the New England Foundrymen's Association on the occasion of their recent visit to the new foundry and pattern departments of the B. F. Sturtevant Co. at Hyde Park, Mass. This has been republished as Bulletin 54, a 16-page pamphlet describing and illustrating these departments, and particularly their industrial equipments. The removal of the foundry and pattern departments is the first step towards the removal of the entire plant from Jamaica Plain, Mass., to the extensive new works at Hyde Park.

Improved Metal-Working Machinery

A brief but concise booklet gives interesting facts concerning several types of improved metal working machinery. The recent introduction of high-speed steel has affected modern shop practice to such an extent that only the most advanced machines are capable of handling them to advantage. Machines of this capability are seen in the booklet. They are designed and built by the American Tool Works Co. of Cincinnati, Ohio, and are strongly proportioned, smooth running, quick to operate and easy to handle. Manufacturers who have occasion to utilize engine lathes, drill presses, radial drills, crank shapers, metal planers and boring and turning mills are invited to send for the American publication.

Continental Car & Equipment Co.

Purchasers of cars and railway equipment of all kinds will be interested to know that the Continental Car & Equipment Co. has issued a new car catalogue. This is in pamphlet form, printed in English and Spanish, presenting brief details and illustrations of some of the various types of cars—logging, flat, steel gondola, all-steel flat, industrial push, 12-ton cane, 5000-pound cane—now ready for shipment. These cars are built after the latest approved designs, of the best material, by the best workmanship, and every effort has been made to reduce the cost of manufacture to a minimum. The Continental Company manufactures railway freight cars, sugar-cane and plantation cars, factory and other industrial cars, railway hand and push cars, iron-ore and mine cars, ballast and coal cars for electric road, logging cars, etc.; offices in the Whitehall Building, 17 Battery Place, New York.

Prospecting for Coal.

A great responsibility rests upon the driller when he makes a report on the thickness of coal. An error may cost the prospective miner many thousands of dollars. The driller must be able to give the exact thickness of the vein, otherwise a proper report is not obtained. In this field of drilling the American specialist has found another opportunity for expert services. Such a specialist is the Edward Christman Company of Massillon, Ohio. This company has tested many large coal fields that have afterwards been developed, and its reports have been found accurate. A brochure entitled "Prospecting for Coal" presents a summary of the services offered by Christman, and refers briefly to some of the important work completed this year. Besides drilling for coal, the Christman Company drills test holes to determine the quality of sandstones, clay and other minerals, and furnishes samples for analysis; also test holes for foundations, bridges, piers, etc.

Graphite Suggestions.

Possibly no other substance is so wonderfully diverse in its application as graphite. In almost every possible calling, in all parts of the world, graphite is used in some form. The savage who has learned to handle a firearm uses it, for his powder has been at least partially made by graphite. His forehead used in his war paints. In distant Japan graphite serves as a harmless coloring agent, for it gives to certain grades of tea their uniformity of color. In South America coffee is polished with it. Electricians and chemists number it among their most serviceable materials. It is also used by printers, hatters, engineers, housewives—in a word, everybody uses it, consciously or unconsciously. "Graphite Suggestions" is the title of a publication which presents most interesting facts concerning graphite products. It is issued by the Joseph Dixon Crucible Co. of Jersey City, N. J., and copies are obtainable on application. For more

than three-quarters of a century the Dixon Company has manufactured graphite in innumerable forms. It works its own mines and uses much of the graphite of other mines besides. This experience of decades is embodied in a quality which has been imparted to Dixon products and renders their use safe and profitable. The company's book is not a catalogue, but an interesting treatise on a substance which has so many and so peculiar properties that no other single substance, it is stated, can possibly perform the same functions.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

Review of the Baltimore Market.

Office Manufacturers' Record,
Baltimore, Md., November 18.

The most important feature in the Baltimore stock market during the past week was an advance of about two points in Seaboard common and nearly five points in the preferred stock as the result of reports that negotiations were in progress to provide more working capital for the company. There was also a decided improvement in the 4 per cent. bonds, which rose more than three points. Other securities displayed no particular movement, but there was a good undertone, and prices were generally well sustained.

In the trading United Railways sold at 88½ to 89½, the income bonds from 58½ to 58¾, and the 4s between 90¾ and 91. Light & Power 4½s changed hands at 81, Consolidated Gas common at 62½, and ex-dividend at 61, the 6 per cents selling at 106¾ and the 5s at 111¾. Seaboard common rose from 13 to 15¼, and the preferred from 21 to 25¾; the 4 per cents from 67¼ to 70¾, and the 5s sold at 98. There was nothing doing in Cotton Duck, but G. B. & S. incomes were sold at 26 and the 1sts at 45¾.

Bank stocks sold as follows: Citizens', 28; Mechanics', 28¾; Bank of Baltimore, 111; Drovers and Mechanics', 300 and 310; Third National, 125. Maryland Casualty sold at 45. Other securities traded in were as follows: Atlantic Coast Line Railroad, 105 and 105¼; do. do. South Carolina, 100¼; do. 4s, certificates, new, 78¼ and 80; do. consolidated 4s, 91½ to 92½; do. 4s, Connecticut, certificates, 90; do. 5s, Connecticut, certificates, 108½; City & Suburban 5s, Washington, 91½ and 92; Georgia Southern & Florida 5s, 112½ and 112¾; Georgia & Alabama consolidated 5s, 105 and 105¼; South Bound 5s, 107; Columbia & Greenville 1st 6s, 116½; Lake Roland 5s, 118; Baltimore City 3½s, 1945, 113; Raleigh & Augusta 6s, 119; Western North Carolina 6s, 115; Booth Packing Co. preferred, 100; Atlanta Street Railway 5s, 104¼; Northern Central 6s, 1904, 102¾; Norfolk City Railway 5s, 105¼; Baltimore City 3½s, 1928, 112 and 112¼; do. do. 1930, 112¼; Lynchburg refunding 4½s, 1927, 106.

SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended
November 18, 1903.

Railroad Stocks.	Par.	Bid.	Asked
Georgia Sou. & Fla. 1st Prof.	100	98	98
Georgia Sou. & Fla. 2d Prof.	100	98	98
United Railways & Elec. Co.	50	88	88
Seaboard Railway Common	100	147	15¼
Seaboard Railway Preferred	100	25½	26
Atlantic Coast Line R. R.	100	105	108

Bank Stocks.	Par.	Bid.	Asked
Citizens' National Bank	100	100	100
Commercial & Far. Nat. Bank	100	100	100
Drovers & Mech. Nat. Bank	100	300	310
Farmers & Mer. Nat. Bank	100	40	65
First National Bank	100	100	100
Manufacturers' National Bk.	100	110	113
National Bank of Baltimore	100	100	100
National Exchange Bank	100	188	192
National Howard Bank	100	10	11¾
National Union Bank of Md.	100	115	115
Second National Bank	100	190	190
Third National Bank	100	124	127½

Trust, Fidelity and Casualty Stocks.

American Bonding & Trust	50	88	88
Continental Trust	100	150	150
Fidelity & Deposit	50	125	135
International Trust	100	89½	95
Maryland Casualty	25	45	45
Mercantile Trust & Deposit	50	125	140
U. S. Fidelity & Guaranty	100	100	135

Miscellaneous Stocks.

G. B. & S. Brewing Co.	100	5	12
United Elec. L. & P. Prof.	50	40	40
Cotton Duck Voting Trust	100	1¾	2½
Consolidation Coal	100	70	70
George's Creek Coal	100	87	87
Consolidated Gas	100	60	62½

Railroad Bonds.

Albany & Northern 5s	94	108	108
Atlanta & Charlotte 1st 7s, 1907	108	92½	93
Atlantic Coast Line Con. 4s	108	111¼	111¼
Char., Col. & Aug. 1st 5s, 1910	108	109	109
Char., Col. & Aug. 2d 7s, 1910	108	116	116¾
Columbia & Greenville 1st 6s, 1916	116	112½	113
Georgia, Car. & North. 1st 5s, 1929	106½	122	122
Georgia South. & Fla. 1st 5s, 1945	112½	107	107
Petersburg, Class B 6s, 1926	122	109	109
Raleigh & Augusta 1st 6s, 1926	119	108½	108½
Seaboard & Roanoke 6s, 1916	107	108½	108½
Virginia Midland 2d 6s, 1911	109	108½	108½
Virginia Midland 3d 6s, 1916	111¼	108½	108½
Virginia Midland 4th 3-4-5s, 1921	108½	115	115
Virginia Midland 5th 5s, 1926	108½	116	116
West. North Carolina Con. 6s, 1914	115	104	104
West Virginia Central 1st 6s, 1911	111¼	106½	106½
Wilmington, Col. & Aug. 6s, 1910	115½	106	106
Wilmington & Wel. Gold 5s, 1935	116	91	91¾
Charleston City Railway 5s, 1923	104	58¾	59
Knoxville Traction 1st 5s, 1928	100½	70	70¼
Newport News & Old Pt. 5s, 1938	106	98	98¼
Norfolk Street Railway 5s, 1944	106	100	100
United Railways 1st 4s, 1949	91	105	105½
United Railways Inc. 4s, 1949	58¾	105	105½
Seaboard 4s	70	45	46
Seaboard 10-year 5s	98	27	30
Lexington Railway 1st 5s	100	83	83
Georgia & Alabama Con. 5s	105	110	110
Consolidated Gas 5s, 1939	111¼	111¼	111¼

Miscellaneous Bonds.

G. B. & S. Brewing 1st 3-4-5s	45	46	46
G. B. & S. Brewing 2d Incomes	27	30	30
United Elec. Light & Power 4½s	83	83	83
Consolidated Gas 6s, 1910	110	110	110
Consolidated Gas 5s, 1939	111¼	111¼	111¼

SOUTHERN COTTON MILL STOCKS

Quotations Furnished by Hugh Mac-
Rae & Co., Wilmington, N. C., for
Week Ending November 17.

	Bid.	Asked.
Abbeville Cotton Mills (S. C.)	70	70
Aiken Mfg. Co. (S. C.)	90	90
Anderson Cotton Mills (S. C.)	123	126
Arkwright Mills (S. C.)	105	105
Augusta Factory (Ga.)	64	64
Avondale Mills (Ala.)	90	95
Belton Mills (S. C.)	101	101
Bibb Mfg. Co. (Ga.)	108½	108½
Brandon Mills (S. C.)	101	101
Buffalo Cotton Mills (S. C.)	101	104½
Buffalo Cotton Mills (S. C.) Pfd.	98	98
Cabarrus Cotton Mills (N. C.)	122	122
Chickamauga Mfg. Co. (S. C.)	95	95
Clifton Mfg. Co. (S. C.)	101	101
Clinton Cotton Mills (S. C.)	135	135
Courtenay Mfg. Co. (S. C.)	125	125
Columbus Mfg. Co. (Ga.)	95	95
Dallas Mfg. Co. (Ala.)	78	80
Darlington Mfg. Co. (S. C.)	91	91
Eagle & Phenix Mills (Ga.)	100	100
Easley Cotton Mills (S. C.)	100	100
Enoree Mfg. Co. (S. C.)	85	85
Enterprise Mfg. Co. (Ga.)	80	80
Exposition Cotton Mills (Ga.)	150	150
Gaffney Mfg. Co. (S. C.)	95	95
Graniteville Mfg. Co. (S. C.)	125	140
Greenwood Cotton Mills (S. C.)	99	102
Grendel Mills (S. C.)	100	104
Henrietta Mills (N. C.)	200	200
King, John P., Mfg. Co. (Ga.)	88	88
Lancaster Cotton Mills (S. C.)	100	110
Lancaster Cot. Mills (S. C.) Pfd.	100	100
Langley Mfg. Co. (S. C.)	85	90
Laurens Cotton Mills (S. C.)	170	175
Lockhart Mills (S. C.)	100	100
Louis Mills (N. C.)	95	95
Louis Mills (N. C.) Pfd.	102	102
Marlboro Cotton Mills (S. C.)	102½	104
Manchester Cotton Mills (S. C.)	90	90
Mills Mfg. Co. (S. C.)	100	100
Mills Mfg. Co. (S. C.) Pfd.	100	100
Monaghan Mills (S. C.)	100	105
Newberry Cotton Mills (S. C.)	120	120
Norris Cotton Mills (S. C.)	108½	108½
Odell Mfg. Co. (N. C.)	98	102
Orangeburg Mfg. Co. (S. C.) Pfd.	101	101
Orr Cotton Mills (S. C.)	102	102
Pacolet Mfg. Co. (S. C.)	106	106
Pelzer Mfg. Co. (S. C.)	165	175
Piedmont Mfg. Co. (S. C.)	200	200
Poe, F. W., Mfg. Co. (S. C.)	150	150
Roanoke Mills (N. C.)	99	99
Saxon Mills (S. C.)	100	103
Sibley Mfg. Co. (Ga.)	80	86
Southern Cotton Mills (N. C.)	95	95
Spartan Mills (S. C.)	135	140
Trion Mfg. Co. (Ga.)	125	150
Ucapau Mills (S. C.)	140	140
Union Cotton Mills (S. C.)	158	158
Union Cotton Mills (S. C.) Pfd.	163½	163½
Victor Mfg. Co. (S. C.)	135	135
Warren Mfg. Co. (S. C.)	100	102
Warren Mfg. Co. (S. C.) Pfd.	106	106
Washington Mills (Va.)	15	20
Washington Mills (Va.) Pfd.	95	95
Whitney Mfg. Co. (S. C.)	115	125
Wilmington Cot. Mills (N. C.) Pfd.	100	100
Woodruff Cotton Mills (S. C.)	95	97½

A branch of the Bank of Grenada will, it is reported, be established at McCool, Miss.

The Reliance Fire Insurance Corporation of Alexandria, Va., has been chartered; capital \$25,000 to \$200,000. W. C. Whitehead is president.

The Texas National Bank of Dallas, Texas, is reported to have had its stock oversubscribed. It is to open for business some time next month; capital \$250,000;

TABLE OF CONTENTS.

EDITORIAL:	Page.
A Chance for Practical Southern Statesmanship	337
Breadstuffs at the Gulf	337
The National Eight-Hour Bill Again	337
A Purpose of the Southern Education Scheme Revealed	337
What We Owe to Cotton	338

Power at Columbus	338
Ohio River Power	338
The Cotton Movement	338
American Rails for Turkey	338
Electric and Steam Roads	339
Southwest Minerals	339
Missouri Industries	339
The Sewanee Review	339
Developments in the Greenbrier Valley	339
Socialism's Poison and Its Antidote	340
Building at St. Louis	341
Prosperous Paducah	342
Greater Volume of Business	342
To Equip Repair Shops	342
Tobacco as a Revenue Producer	343
Wrought by the Standard	343
Texas Oil Shipments	344
Sour Lake's Rise	344
In and Near Pinebluff	344
Opportunities at Hope	345
The Iron and Metal Trades	345
For a Pasteurizing Plant	345
To Paper Manufacturers	345
Louisiana Property Values	345
Coal in Arkansas	345
New Men in Seaboard	345

RAILROADS:

Carolina & Tennessee	346
The "Orient" in Mexico	346
Wellsburg & State Line	346
Nashville, Columbia & Gallatin	346
Important Development	346
Kelly's Creek & Northwestern	346
The First Pullman Sleepers	346
What President Stevens Said	346
Royal Blue Book	346
Beaumont & Sour Lake	346
After Coal and Lumber	346
Baltimore & Belair	346
Teche Electric Railroad	347
The Southern's Second Track	347
Dalton & Alcala	347
St. Louis, El Reno & Western	347
Appointed	347
Came Belt Reported Sold	347
Reported Deal Denied	347
Railroad Notes	347
Ohio River Improvements	347
For Leave Protection	347
"Counsels Fraught With Wisdom"	347

TEXTILES:

Columbia (S. C.) Mills Reorganize	347
Monarch Cotton Mills	347
Textile Notes	347
Quotations of Cotton Yarns	347

MECHANICAL:

Rapid Bridge Construction (Illus.)	348
The Houser Portable Hoist (Illus.)	348
Punch, Shear and Bender Combined (Ill.)	348
Hartford Automatic Furnace Feeders (Illustrated)	348
A Large Pumping Engine (Illus.)	349
Asteroid Roofing (Illus.)	349
Union Station for Durham, N. C. (Illus.)	349

CONSTRUCTION DEPARTMENT:

New Enterprises	350
Building Notes	352
Railroad Construction	353
Machinery Wanted	353
Industrial News of Interest	354
Trade Literature	355

FINANCIAL NEWS:

Review of the Baltimore Market	356
Securities at Baltimore	356
Southern Cotton-Mill Stocks	356
American Cotton Oil	30
Baltimore & Ohio Report	30
New Corporations	31
New Securities	31
Financial Notes	31

president, W. C. Padgett; cashier, J. W. Blake.

Lake Butler, Fla.—Bids are being asked on \$4000 of 20-year city bonds. F. G. Schell is city clerk.

The Berkley People's Bank of Berkley, Va., proposes to increase its capital on December 15 from \$30,000 to \$50,000.

[For Additional Financial News, See Pages 30 and 31.]

Hambleton & Co.**BANKERS and BROKERS,**

Members New York and Baltimore Stock Exchanges.

17 S. Calvert St., BALTIMORE.

High-grade Investment Bonds, Municipal, Railway, Industrial.

Letters of Credit Available Everywhere.

CONDENSED STATEMENT OF THE First National Bank of Richmond, Va.

Sept. 9, 1903.

RESOURCES.

Loans and Discounts	\$4,977,890 94
Overdrafts	142 84
Other Stocks and Bonds	17,601 78
Banking House and other Real Estate	67,510 14
Furniture and Fixtures	0 00
U. S. 2 Per Cent. Bonds at par (Market Value \$687,625 00.)	612,500 00
Premium on U. S. Bonds	0 0
Virginia Bonds to Secure U. S. Deposits	386,000 0
Cash and Due from Banks	1,408,612 35
	\$6,580,457 75

LIABILITIES.

Capital	\$600,000 00
Surplus and Profits, net	815,742 23
Reserved for Interest	9,096 01
Circulation	699,900 00
Deposits	4,447,219 51
U. S. Bond Account	12,500 00
Virginia Bond Account	306,000 00
	\$6,580,457 75

VIRGINIUS NEWTON, Pres. JNO. M. MILLER, JR., Cash.

C. N. McADOO & CO.

GREENSBORO, N. C.

Investment Securities.

Stocks and Bonds bought and sold.
Legitimate enterprises incorporated and financed.
Loans negotiated

GO SOUTH!

For Business Opportunities, Investment Securities, Real Estate, Timber, Mines and Industrial Properties in all parts of the South, correspond with

Metropolitan Investment Co.

GEO. B. EDWARDS, President, Charleston, S. C.
Commercial and Financial Agent. Business undertaken in all parts of the world. Satisfactory references.

Members Baltimore Stock Exchange.

J. WM. MIDDENDORF & CO.**BANKERS AND BROKERS,**

Continental Trust Bldg.

Baltimore, Md.

Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished. Private Wire to New York and Richmond.

Merchants' & Farmers' Nat. Bank

CHARLOTTE, N. C.

Capital, \$200,000. Surplus and Profits, \$75,000.

Prompt and intelligent attention to all business entrusted to us. Correspondence invited.

Dr. J. H. McAden, Pres. Geo. E. Wilson, V. Pres.

C. N. Evans, Cash. W. C. Wilkinson, Asst. Cash.

N. Y. Correspondent:

SEABOARD NATIONAL BANK.

Spencer Trask & Co.**BANKERS**

William & Pine Sts., New York

Investment Securities.

Members New York Stock Exchange.

Branch Office, Albany, N. Y.

Savannah Trust Company,

13 Bay St., East, SAVANNAH, GA.

Capital, \$500,000.

Executes trusts of every description. Accepts deposits and allows interest on daily balances. Collections promptly handled.

WM. W. MACKALL, President.
GEO. J. BALDWIN, Vice-President.
WM. V. DAVIS, Secretary and Treasurer.

JOHN L. WILLIAMS & SONS,**BANKERS,**

Dealers in RICHMOND, VA.

Southern Investment Securities

MUNICIPAL BONDS A SPECIALTY.

Correspondence Invited.

INCORPORATE

Under a United States Law,

thus insuring respect and dignity throughout the world. No incorporation fee; no annual tax. Information furnished by

The District of Columbia Charter Co.

Columbian Bldg., Washington, D. C.

References by permission:

Central Natl. Bank, Natl. Capital Bank and James L. Norris, Patent Solicitor, Washington, D. C.

HUGH C. RISDON,

Industries Located, Organized and Financed. Bond Issues Placed.

Industrial Plants developed, bought and sold.

Main Office, 431 BOND BLDG., WASHINGTON, D. C.

Seekers after and for Industrial Sites, Plants, Factories and Mills can be advantageously assisted by us. We organize, finance and develop Industrial Propositions. Charters obtained and stock and bond issues placed. Practical managers and superintendents of financial responsibility procured for manufacturing industries. Correspondence solicited. Explanatory Book let on application. Address nearest address noted herewith.

HUGH C. RISDON, Industrial Broker.

P. O. Box 110, Washington, D. C.
P. O. Box 601, Norfolk, Va. P. O. Box 142, Atlanta, Ga.

Harriman & Northeastern 6s,
Houston East & West Texas 5s,
Georgia Midland 3s,

And all Railroad Securities dealt in, but no new enterprises promoted.

F. J. LISMAN & CO., 30 Broad St., New York.

Specialists in Steam Railroad Securities.

MEMBERS NEW YORK STOCK EXCHANGE.

J. P. HORNADAY & CO.

Electric Railway, Water Works, Light, Traction, Industrial and Mineral Properties and Securities Bought and Sold.

Suite No. 1108 Traction Bldg. CINCINNATI

Hugh MacRae & Co.**Bankers,**

MISCELLANEOUS SOUTHERN SECURITIES,

COTTON MILL STOCKS

WILMINGTON, N. C.

WASHINGTON, D. C., 408 Colorado Bldg.

International Trust Co.

Of Maryland,

BALTIMORE.

Capital, \$2,000,000.00
Surplus and Profits, \$1,550,660.12

OFFICERS:

DOUGLAS H. GORDON, President.
J. WM. MIDDENDORF, Vice-Pres.
EDWARD H. THOMSON, Sec. and Treas.
CHAS. D. FENHAGEN, Asst. Sec. & Treas.
WALTER D. FOCKE, Asst. Sec. & Treas.

Executive Committee:

SAMUEL C. ROWLAND, Chairman, Sec. and Treas. American Lumber Co.; Pres. National Bank of Port Deposit, Md.
SUMMERFIELD BALDWIN, of Woodward, Baldwin & Co., Wholesale Dry Goods Commission Merchants; Director National Exchange Bank.
RICHARD H. EDMOND, President and Editor Manufacturers' Record.
J. WM. MIDDENDORF, of J. Wm. Middendorf & Co., Bankers & Brokers; Vice-Pres. Seaboard Air Line Railway.
EDWARD H. THOMSON, of E. H. Thomson & Sons, Bankers & Brokers; Director Merchants National Bank.
DOUGLAS H. GORDON, President.

We respectfully solicit correspondence with Banking Institutions and Corporations desiring the services of a well equipped Trust Company.

4 % Certificates of Deposit.

Due March 1, 1908.
Interest payable quarterly.

Coupon Certificates of \$1000 each.

The above certificates are engraved, in coupon form, issued to bearer, with provision for registration of Principal, in denominations of \$1000 each, interest at four per cent. per annum, payable March, June, September and December. The holder of these certificates, by giving sixty days' notice in writing, can obtain payment of principal on any interest date.

ISSUED BY

The Continental Trust Co.

BALTIMORE.

Capital and Surplus, \$5,340,000.

Interest paid on deposits subject to check.

International Mercantile Agency,

346 Broadway,
NEW YORK CITY.

A rating book which rates all merchants of the United States and Canada; no blank ratings. Estimates of capital are made within a narrower range than ever before attempted; HABIT OF PAYMENT is indicated in addition to, though absolutely independent of, the "capital, credit or standing rating." This is a vital feature heretofore uncovered by any agency book. We rate from "nothing" to ten millions and over. SPECIAL REPORTS promptly furnished.

BALTIMORE OFFICES,
309-319 The Calvert.

MOTTU, DeWITT & CO.
Southern Investments,
NORFOLK, VA.

Correspondence Invited.

Americans
AN HONEST ROPE
made throughout of pure Manila Fibre is



Quality of hemp used in "AMERICAN" Rope.

"AMERICAN" TRANSMISSION ROPE

Write for prices and samples of Manila, Sisal and Jute Cordage

THE AMERICAN MFG. CO.
65 Wall St. New York.

"A Little Blue Book On Rope Transmission" sent free upon request

AMERICAN COTTON OIL.

Features of the Year's Operations of the Company.

The annual report of the American Cotton Oil Co. for the fiscal year ended August 31, 1903, shows that the profits for the year amounted to \$1,665,081.32, out of which interest was paid on debenture bonds amounting to \$135,000, leaving net profits of \$1,530,081.32, out of which were paid dividends on 6 per cent. preferred stock amounting to \$611,916 and two dividends of 2 per cent. each on the common stock amounting to \$809,482, making a total of \$1,421,400 and leaving a balance of \$108,681.32 carried to the general profit and loss account.

There was expended \$372,146.69 for additions to the property, and the sum of \$301,433.38 has been expended for maintenance, which was charged to operating expenses. The net working capital is shown as \$4,425,814.74, of which \$1,280,492.99 was cash in banks, the remainder being in bills and accounts receivable, marketable products, raw materials and supplies, after deducting current liabilities. The total balance of the general profit and loss account is \$7,018,106.41. There is no change in the capital stock issued and outstanding, and the total amount of gold debenture bonds outstanding is \$3,000,000 at 4½ per cent., and they will mature November 1, 1915. It is further stated that all the properties of the organization are absolutely free from mortgage or other lien. The executive officers of the company are: President and chairman of the board, George A. Morrison; executive committee, George A. Morrison, J. Frederick Chamberlin, Robert F. Munro; vice-president, Robert F. Munro; secretary and treasurer, Justus E. Ralph; general counsel, Messrs. Sullivan & Cromwell.

Regarding the dividend on the common stock, it is to be noted that it is higher than the average paid during the last six years, although in 1902, which was an exceptional year, 6 per cent. was declared. The dividend distribution for six years reaches a total of 22½ per cent., or an average of about 3¾ per cent. per annum; with this the 4 per cent. dividend of 1903 compares well. Besides, the net profits of the company, after deducting interest upon the debenture bonds, will also be found up to the average of those years. The report says:

"Competition for cottonseed during the greater portion of the year was persistent and extreme in character, buyers being governed by the fetch that however high the price paid for seed they could recoup themselves with a profit by the sale of the products. The seed in many sections proved to be of poor quality, producing oil of inferior grade and less than normal quantity to the ton.

"Owing to the high prices of cotton oil as compared to other oils and food products, the foreign markets failed to consume the average quantity. The deficiency, however, was more than offset by an increase in home consumption, and the season closed with a market bare of oil for immediate demands.

"It is of vital importance to all manufacturing countries that markets shall be found for their surplus products. It is a singular fact that while all other commercial countries are making strenuous efforts through subsidies and bounties to obtain possession of new markets for their products, the United States remains lukewarm and disinclined to accord any substantial encouragement to conserve and develop trade, even with countries having the advantage of the 'shorter haul.' Notwithstanding, the business of the company with neighboring countries

continues to increase, and has great possibilities.

"Your executive is continually reminded that many of the stockholders of the American Cotton Oil Co. are under the impression that its business is confined to crushing, extracting and refining oil from cottonseed. This is a fallacy. We have valuable and profitable assets in such great departments as those conducted under the titles of the N. K. Fairbank Co. of Chicago, St. Louis, New Orleans and Montreal; the W. J. Wilcox Lard & Refining Co. of New Jersey, the Union Oil Co. of Providence, the New Orleans Acid & Fertilizer Co., as well as brands, trade-marks and good-will, worth many millions of dollars.

"As to the outlook for the present year, our reports so far indicate a cotton crop equal to that of last year. Arrangements have been made and are being put in force for the continued development of the company's business, and a favorable outcome from the operations of the year is confidently looked for."

BALTIMORE & OHIO REPORT.

Gross Earnings of the System Now More Than \$63,000,000 a Year.

At the recent annual meeting of the Baltimore & Ohio Railroad Co. all the members of the board of directors were re-elected. The report of the system for the fiscal year ended June 30, 1903, concerning which preliminary statements have already been published, was submitted to the stockholders. It shows that the gross earnings were \$63,449,633, an increase of \$5,557,138 as compared with the preceding year. The total expenses were \$39,569,964, an increase of \$2,562,979. The net earnings were \$23,879,670, an increase of \$2,994,150, and the total income was \$25,489,520, an increase of \$3,368,789. The surplus, after paying interest, dividends, etc., was \$5,506,647. The percentage of operating expenses to gross earnings was 62.36, a decrease of 1.57 per cent.

It is to be noted that the expenditures for maintenance of way and structures, which amounted to \$6,175,116, shows a decrease of \$1,060,273. This did not, it is stated, lower the standard, but is the result of perfecting organization and thus reducing forces and saving material, besides, a great deal of heavy work was done during the next preceding year. On the other hand, the expenses of conducting transportation, which amounted to \$23,653,780, showed an increase of \$2,706,884. Concerning this it is stated that the wages in all departments were increased to accord with conditions prevailing throughout the country, and adjustments were made looking to proper compensation with regard to responsibilities of positions occupied and services performed.

The report refers to the B. & O.'s purchase of a large interest in the Philadelphia & Reading Railway Co., which controls the Central Railroad of New Jersey, certain lines of the two companies forming an essential part of the B. & O.'s through route to New York. It is to be noted also that the B. & O. holds a total par value of Reading shares of \$27,500,000 out of a total stock issue by the Reading of \$140,000,000. The B. & O.'s holdings consist of \$7,500,000 of common, \$6,065,000 of first preferred and \$13,930,000 of second preferred stock.

The report also shows results on lines controlled by or affiliated with the Baltimore & Ohio system as follows: Gross earnings \$4,729,042, increase \$403,835; expenses \$3,170,038, increase \$605,933; net earnings from operation \$1,559,004, decrease \$202,098.

There were added to the system during

FISK & ROBINSON

BANKERS

Government Bonds

and other

Investment Securities

MEMBERS NEW YORK STOCK EXCHANGE

35 CEDAR STREET 28 STATE STREET
NEW YORK BOSTON

Stocks:

Hall Signal Co.
Pope Mfg. Co.
Intern'l Fire Engine,
Singer Mfg. Co.
American Brass Co.
American Bank Note,
Railway Auto. Sales Co.
U. S. Playing Card,
American Felt Co.
Casein Co.

DEALT IN.

TOBEY & KIRK,

25 Broad St., New York.

Established 1873.

J. Wm. Middendorf, Pres. A. H. Rutherford, Treas.
R. L. Williams, Vice-Pres.
Howard P. Page, Sec. and Auditor.
E. L. Bemis, General Manager,
Office of Gen. Mgr., Richmond, Va.

Railways & Light Co. of America,

EXECUTIVE OFFICES:
CONTINENTAL TRUST BUILDING,
BALTIMORE, MD.

Finances, Builds, Purchases Electric Railways,
Electric Lighting Properties, Waterworks, Ice
Plants, Etc. Examinations made and reports
turned on all classes of industrial properties.
CORRESPONDENCE SOLICITED.

APPRAISAL & AUDIT CO. OF AMERICA.

Teutonic Bldg., CHICAGO.

Audits and Examinations of Books and Accounts. Devisers of Successful
Accounting Systems. Appraisers of all classes of Property. Plans and
Specifications of Buildings and Machinery. Send 10c. in stamps
for book, "SYSTEM OF APPRAISAL & AUDIT."

WE FINANCE AND BUILD

Electric Railways, Power Stations, Water Powers, etc., etc.

WE BUY

Railway Charters and Franchises, ALSO Small Issues of
Railway, Mining and Industrial Bonds.

Correspondence Solicited.

The Mechanics Electric Co.

P. O. Box 1157.

R227, Board of Trade Bldg., BOSTON, MASS.

THE AUDIT COMPANY OF NEW YORK

EXAMINATIONS.

APPRAISALS.

AUDITS.

Investigations for Financing and Underwriting
and for Reorganization Committees.

New York,

Mutual Life Buildings, 43 Cedar Street.

Chicago,
New York Life Building.

Philadelphia,
Arcade Building.

WHEN ABOUT TO
INCORPORATE

Write for fourth edition of
"Pointers on Delaware Cor-
poration." Official forms,
estimates of cost and copies
of the amended law.

DELAWARE TRUST COMPANY

WILMINGTON, DELAWARE.

The Exchange Bank,
MACON, GA.

J. W. CABANISS, Pres. C. M. ORR, Cash.
W. H. BURDICK, Asst. Cash.
Capital, \$500,000.00
Surplus and Undivided Profits, 131,028.69
Best facilities for making Collections at lowest
rates. Correspondence invited.

Jacob Phinizy, Pres. Chas. G. Goodrich, Cash.
Hamilton H. Hickman, Vice-Pres.

Georgia Railroad Bank,

AUGUSTA, GA.

Capital, \$200,000.00 Undivided Profits, \$201,585.63
Commenced Business December 31, 1892.

SURETY BONDS.

Fidelity and Deposit Co.

OF MARYLAND.

Home Office, - BALTIMORE, MD.

Assets Over \$5,000,000.

Pioneer Surety Co. of the South.
Becomes Surety on Bonds of every de-
scription.

AGENTS IN ALL PRINCIPAL CITIES.

HARRY NICODEMUS, Sec'y and Treas.
EDWIN WARFIELD, President.

Guaranteed Storage Receipts Issued

For property stored on your own premises or in
Public Warehouses. Also for Property stored
in the warehouses of this Company.

All Receipts GUARANTEED by the FIDELITY
& DEPOSIT CO. of Md

A HIGH CLASS COLLATERAL—Accepted in
all money markets.

Baltimore Fidelity Warehouse Co.

BALTIMORE, MARYLAND.

ALBERT G. OBER, President.
T. E. WITTERS, Sec'y & Mgr.
THOS. L. BERRY, Treasurer

AGENCIES:

Equitable Trust Company, Augusta, Ga.
American Trust & Banking Co., Atlanta, Ga.
Other agencies will be established where needed.
Correspondence Solicited.

the year 36.37 miles of main track, 58.63 miles of second track, 3.71 miles of third track and 3.11 miles of fourth track. There were also 81.22 miles of sidings built and several small branches constructed. More than 56,359 tons of new 85 and 100-pound steel rails were laid, and 1,291,394 new cross-ties were used for both renewal and construction. The equipment in service included 1769 locomotives, 1158 passenger cars and 84,742 freight cars.

New Corporations.

The John M. Carson Banking Co. has begun business at Morgantown, Ky.; president, B. L. D. Guffy.

E. B. Linn and others of Paducah, Ky., are reported to be organizing a national bank, with \$25,000 capital, at Garland, Texas.

It is reported that a trust company with \$500,000 capital will be organized at Knoxville, Tenn., by John R. Pepper, James F. Hunter and others of Memphis.

The People's State Bank of Coyle, Okla., and the Citizens' State Bank of Cumberland, Okla., each with \$10,000 capital, have been authorized to begin business.

The Conservative Investment Co. has applied for a charter at Savannah, Ga.; capital \$30,000. The incorporators are Horace Rivers, J. Ferris Cann, Hal H. Bacon and G. T. Cann.

The Newport News Fire Insurance Co. has been chartered at Newport News, Va.; capital \$100,000 to \$200,000; incorporators, Irwin Tucker, president; Dr. Carter Perkins and W. E. J. Kitchen.

The First National Bank of Milton, Fla., capital \$25,000, has organized by electing officers as follows: Asberry P. Hardee, president; Lewis P. Golson, vice-president; David T. Williams, cashier.

The Boone County Trust Co. of Columbia, Mo., capital \$150,000, of which one-half has been subscribed, has been incorporated by William Bright, John F. Wilhite, George Williamson, S. C. Hunt, David A. Robnett and others.

The Fidelity Savings Bank & Loan Co. of Bentonville, Ark., has been chartered, with \$25,000 capital, of which \$10,000 has been subscribed. The officers are W. A. Burks, president and cashier; G. A. Chapman, vice-president; B. F. Burks, secretary.

The Continental Bank & Trust Co. of Fort Worth, Texas, is reported to have established another bank at Quinlan, Texas. Its other banks are at Prosper, Blueridge, Bridgeport, Boyd, Rising Star, Tolar and Alto.

The Planters' Bank of Pawnee, O. T., capital \$25,000, has been incorporated by C. E. Vandervoort of Chicago, Ill.; B. S. McGuire, C. R. McCullough, G. H. Phillips, R. C. Jay, O. M. Lancaster, E. C. Wheeler, Frank Hudson and W. A. Jacobs, all of Pawnee.

The Bank of Piedmont has been organized at Greenville, S. C., with the following directors: W. A. Simpson, president; E. P. Vandiver, vice-president; Joseph Norwood, cashier and manager; Jas. L. Orr, W. H. Hammett, J. T. Long, M. W. Merritt, J. M. Long, W. S. Mauldin.

The Jonesville Building and Loan Association of Jonesville, S. C., has organized by electing directors as follows: J. J. Littlejohn (president), J. F. Alman (vice-president), M. R. Sams (secretary and treasurer), J. L. McWhirter, J. H. McKissick, H. J. Hames, T. G. Johnson, A. L. Bassett.

The Bank of Morven of Morven, N. C., capital \$10,000, has organized by electing the following officers: President, T. V. Hardison; vice-president, G. A. Martin; cashier, M. L. Ham; attorney, H. H. McLendon; directors, N. J. Thompson,

E. A. Parsons, T. V. Hardison, G. A. Martin, H. H. McLendon, L. L. Little, W. L. Marshall.

The North Memphis Savings Bank of Memphis, Tenn., capital \$50,000, has applied for a charter. The organizers are J. T. Walsh, J. L. Ullathorne, James Rose, W. A. Bickford, Henry Craft, Geo. S. Hooper, W. J. Chase, W. H. Cousins, John E. Randle, George C. Love, C. J. Tully, J. J. Tanner, Dan Shea, C. J. Edmonds and T. B. Caldwell.

The First National Bank of Northeast, Md., has organized by electing officers as follows: President, L. L. Dirickson, Jr., of Berlin; vice-president, C. A. Benjamin of Leslie; second vice-president, Andrew Anderson; cashier, R. L. Morgan of Aberdeen; directors, L. L. Dirickson, Jr., Abel C. Cameron, C. A. Benjamin, Andrew Anderson, E. T. B. Day, John L. Moore, R. G. Underwood and S. J. Mearns.

New Securities.

Versailles, Mo.—The city has voted \$10,000 of bonds for an electric-light plant.

McComb City, Miss.—The city has sold \$10,000 of sidewalk bonds to the McComb City Bank.

Carlisle, Ky.—The city has voted to issue \$25,000 of water bonds and \$5000 of fire-engine bonds.

Louisville, Ky.—The suburban town of Oakdale proposes to issue \$9000 of bonds for improvements.

Woodlawn, Ala.—An election is to be held November 19 to vote on an issue of \$15,000 of school bonds.

Beaumont, Texas.—The attorney-general has approved \$100,000 of Jefferson county 6 per cent. 20-40-year road bonds.

Columbia, Mo.—An election will be held on November 24 to vote on \$100,000 of bonds to purchase a water-works and electric-light plant.

Greenwood, Miss.—At its December meeting the board of aldermen will receive bids for \$4000 of 20-year 5 per cent. improvement bonds.

Beaumont, Texas.—It is reported that the \$100,000 of road improvement bonds has been sold at par and interest to Floyd Shock of St. Louis, Mo.

Meridian, Miss.—Reported that the \$150,000 issue of water-works bonds has been sold to John Nuvreen & Co. of Chicago at a premium of \$2000.

Ozark, Ala.—Mayor W. W. Kirkland is reported to have sold at par to New York purchasers the \$15,000 of electric-light bonds recently voted.

Belzoni, Miss.—Bids will be received until 7 P. M. on December 1 for \$20,000 of 6 per cent. 20-year water-works and electric-light bonds. S. Castelman is mayor.

Hyattsville, Md.—The town will apply to the legislature for authority to issue sewerage bonds. Charles A. Welles is mayor, and Dr. J. R. Owens is president of the town council.

Corinth, Miss.—Bids will be received until December 7 for \$55,000 of 5 per cent. water and sewer bonds, dated January 1, 1904, to run twenty years. T. K. Young is mayor.

Augusta, Ga.—Bids will be received until noon on December 1 for \$106,000 of 4 per cent. 30-year refunding bonds. Jacob Phinizy is mayor, and William A. Latimer, chairman of finance committee.

Columbia, S. C.—The Whaley Mills has authorized an issue of \$3,000,000 of bonds, of which \$1,750,000 are on the Olympia Cotton Mills, \$800,000 on the Granby Cotton Mills and \$450,000 on the

Richland Cotton Mills, all secured by mortgages on the property.

Financial Notes.

The State National Bank of Oklahoma City has increased its capital stock from \$50,000 to \$200,000.

The Fredericktown Trust Co. of Fredericktown, Mo., proposes to increase its capital from \$250,000 to \$500,000.

The Bank of Lafayette at Lafayette, La., has increased its capital from \$25,000 to \$50,000.

The Trinity Valley Trust Co. of Dallas, Texas, has increased its capital from \$8000 to \$16,000.

The Fort Smith Trust Co. of Fort Smith, Ark., has amended its incorporation articles so as to conduct a general banking business; capital paid in \$100,000.

Christmas Holiday Excursion Rates.

Southern Railway will sell to teachers and students of schools and colleges, December 16 to 22, inclusive, final limit returning January 8, 1904, tickets at very low rates upon presentation and surrender of certificates signed by superintendents, principals and presidents of various institutions.

For the general public these low-rate tickets will be on sale December 23, 24, 25, 30 and 31, 1903, and January 1, 1904, with final limit January 4.

For tickets and further information apply 120 E. Baltimore street.

Pennsylvania Railroad Co. Will Issue Clerical Orders for 1904.

Pursuant to its usual custom, the Pennsylvania Railroad Co. will issue clerical orders for the year 1904 to ordained clergymen having regular charge of churches located on or near its lines. Clergymen desiring such orders should make individual application for same on blanks furnished by the company through its agents. Applications should be sent to the general office of the company as soon as possible, in no case later than December 19, so that orders may be mailed by December 31 to all clergymen entitled to receive them.

Companies Organized Under Corporation Laws of Delaware.

The Laws furnish, at least expense, ample rights to stockholders, with minimum restriction upon corporate action. Charters perpetual, not subject to repeal by the Legislature. Copy of the Law, Blank Forms and Estimate of Expenses furnished by

DELAWARE CORPORATION CO.
926 Market Street, WILMINGTON, DEL.

FOR SALE—PRICES LOW.

300,000 acres Pine in Mississippi, Louisiana, Florida and Canada. Several splendid Coal and Hardwood tracts. Buyers can deal direct.

RHODES & STIMPSON,

1102 Majestic Bldg. Detroit, Mich.

Established 1835.

The Merchants National Bank,
BALTIMORE, MD.

DOUGLAS H. THOMAS, President.
WM. INGLE, Cash. J. C. WANDS, Asst. Cash.

Capital, \$1,500,000.
Surplus and Profits, \$893,000.
Deposits, \$10,150,000.

Accounts of Banks, Bankers, Corporations and Individuals solicited. We invite correspondence.

BONDS.

\$7,000 GEORGIA STATE BONDS,
Registered; 4½%, \$1000 each, due January, 1909.
Yield 3.3%. All or any part for sale by

MARTIN & BRO.

STOCKS, BONDS AND REAL ESTATE,
AUGUSTA, GA.

HIGH GRADE

7 per cent. Preferred Stocks,
in modern, up-to-date Southern Cotton Mills.
Other investment securities also.

F. C. Abbott & Company,
Charlotte, N. C.

HENRY W. THOMSON,
Spartanburg, S. C.

STOCK AND BOND BROKER,

Southern Cotton-Mill Stocks a Specialty.
CORRESPONDENCE SOLICITED.

PALMETTO BANK & TRUST CO.
COLUMBIA, S. C.

CAPITAL, \$250,000.

GENERAL BANKING BUSINESS TRANSACTED
In the heart of the great cotton mill development of the South, our services are offered to investigate securities and enterprises.
High class securities offered for sale.

W. P. BROWN & CO.

Cotton Merchants
and Exporters.

839 Gravier St. New Orleans.

WE INVITE YOUR DEPOSIT ACCOUNT.

United States Mortgage & Trust Company

GEORGE W. YOUNG,
President.

55 Cedar Street. New York. 73d St. and Broadway.

CAPITAL AND SURPLUS FIVE MILLIONS.

Issues Travellers' Letters of Credit and Foreign Drafts.

RICHARD A. BLYTHE,
COTTON WARPS AND YARNS,
No. 114 Chestnut Street, PHILADELPHIA, PA.

BUCKINGHAM, PAULSON & CO., Commission Merchants,

NEW YORK. COTTON YARNS, PHILA. CHICAGO.

CORRESPONDENCE AND CONSIGNMENTS SOLICITED.

FOREIGN CAPITAL

NOT AFFECTED BY WALL STREET.

JAMES S. WHITE, 61 Wall Street, NEW YORK.

Enabling owners of approved properties to
DEVELOP—EXTEND—EQUIP
INDUSTRIALS, RAILWAYS, MINES,
and similar enterprises. Address, with full details,

ALPHABETICAL INDEX OF ADVERTISERS.

For CLASSIFIED INDEX See

Pages 3, 5, 7, 9, 11, 13, 15 and 17.

Ads. marked * appear every other week. Ads. marked † appear in first issue of the month. Ads. marked ‡ not in this issue.

Abbott, F. C., & Co.	31	Abbott, F. C., & Co.	31	Abbott, F. C., & Co.	31	Abbott, F. C., & Co.	31
Abstrative Material Co.	40	Abstrative Material Co.	40	Abstrative Material Co.	40	Abstrative Material Co.	40
Acme Road Machinery Co.	43	Acme Road Machinery Co.	43	Acme Road Machinery Co.	43	Acme Road Machinery Co.	43
Adams, J. M.	9	Adams, J. M.	9	Adams, J. M.	9	Adams, J. M.	9
Adams Laundry Machinery Co.	25	Adams Laundry Machinery Co.	25	Adams Laundry Machinery Co.	25	Adams Laundry Machinery Co.	25
Affleck, George E.	1	Affleck, George E.	1	Affleck, George E.	1	Affleck, George E.	1
Aitchison, Robt., Perf. Met. Co.	44	Aitchison, Robt., Perf. Met. Co.	44	Aitchison, Robt., Perf. Met. Co.	44	Aitchison, Robt., Perf. Met. Co.	44
Alabama Con. Coal & Iron Co.	35	Alabama Con. Coal & Iron Co.	35	Alabama Con. Coal & Iron Co.	35	Alabama Con. Coal & Iron Co.	35
Alabama Frog & Switch Co.	38	Alabama Frog & Switch Co.	38	Alabama Frog & Switch Co.	38	Alabama Frog & Switch Co.	38
Alabama Iron Works.	3	Alabama Iron Works.	3	Alabama Iron Works.	3	Alabama Iron Works.	3
Albergo Condenser Co.	34	Albergo Condenser Co.	34	Albergo Condenser Co.	34	Albergo Condenser Co.	34
Alexander Bros.	24	Alexander Bros.	24	Alexander Bros.	24	Alexander Bros.	24
Alexander, S. B., Jr., & Co.	39	Alexander, S. B., Jr., & Co.	39	Alexander, S. B., Jr., & Co.	39	Alexander, S. B., Jr., & Co.	39
Allegheny Ore & Iron Co.	37	Allegheny Ore & Iron Co.	37	Allegheny Ore & Iron Co.	37	Allegheny Ore & Iron Co.	37
Allegheny Pin & Bracket Co.	38	Allegheny Pin & Bracket Co.	38	Allegheny Pin & Bracket Co.	38	Allegheny Pin & Bracket Co.	38
Allington & Curtis Mfg. Co.	60	Allington & Curtis Mfg. Co.	60	Allington & Curtis Mfg. Co.	60	Allington & Curtis Mfg. Co.	60
Allis-Chalmers Co.	14, 27	Allis-Chalmers Co.	14, 27	Allis-Chalmers Co.	14, 27	Allis-Chalmers Co.	14, 27
Allison, W. D., Co.	65	Allison, W. D., Co.	65	Allison, W. D., Co.	65	Allison, W. D., Co.	65
Alpha Photo-Engraving Co.	57	Alpha Photo-Engraving Co.	57	Alpha Photo-Engraving Co.	57	Alpha Photo-Engraving Co.	57
American	3	American	3	American	3	American	3
American Air Compressor Wks.	43	American Air Compressor Wks.	43	American Air Compressor Wks.	43	American Air Compressor Wks.	43
American Blower Co.	15	American Blower Co.	15	American Blower Co.	15	American Blower Co.	15
American Cement Co.	8	American Cement Co.	8	American Cement Co.	8	American Cement Co.	8
American Cotton Oil Co.	55	American Cotton Oil Co.	55	American Cotton Oil Co.	55	American Cotton Oil Co.	55
American Elec. Sup. & Mfg. Co.	35	American Elec. Sup. & Mfg. Co.	35	American Elec. Sup. & Mfg. Co.	35	American Elec. Sup. & Mfg. Co.	35
American Engine Co.	18	American Engine Co.	18	American Engine Co.	18	American Engine Co.	18
American Excelsior & Mch. Co.	40	American Excelsior & Mch. Co.	40	American Excelsior & Mch. Co.	40	American Excelsior & Mch. Co.	40
American Frog & Switch Co.	13	American Frog & Switch Co.	13	American Frog & Switch Co.	13	American Frog & Switch Co.	13
American Locomotive Co.	12	American Locomotive Co.	12	American Locomotive Co.	12	American Locomotive Co.	12
American Machine Co.	40	American Machine Co.	40	American Machine Co.	40	American Machine Co.	40
American Machine Co. of Wil-	54	American Machine Co. of Wil-	54	American Machine Co. of Wil-	54	American Machine Co. of Wil-	54
mington, Del.	54	mington, Del.	54	mington, Del.	54	mington, Del.	54
American Mfg. Co.	29	American Mfg. Co.	29	American Mfg. Co.	29	American Mfg. Co.	29
American Oak & Hick. Reed Co.	37	American Oak & Hick. Reed Co.	37	American Oak & Hick. Reed Co.	37	American Oak & Hick. Reed Co.	37
American Pulley Co.	23	American Pulley Co.	23	American Pulley Co.	23	American Pulley Co.	23
American Railway Supply Co.	4	American Railway Supply Co.	4	American Railway Supply Co.	4	American Railway Supply Co.	4
American Roofing Co.	47	American Roofing Co.	47	American Roofing Co.	47	American Roofing Co.	47
American Sheet Steel Co.	25	American Sheet Steel Co.	25	American Sheet Steel Co.	25	American Sheet Steel Co.	25
American Ship Windlass Co.	9	American Ship Windlass Co.	9	American Ship Windlass Co.	9	American Ship Windlass Co.	9
American Spiral Pipe Works.	53	American Spiral Pipe Works.	53	American Spiral Pipe Works.	53	American Spiral Pipe Works.	53
American Steam Gauge & Valve	50	American Steam Gauge & Valve	50	American Steam Gauge & Valve	50	American Steam Gauge & Valve	50
Mfg. Co.	50	Mfg. Co.	50	Mfg. Co.	50	Mfg. Co.	50
American Steam Pump Co.	5	American Steam Pump Co.	5	American Steam Pump Co.	5	American Steam Pump Co.	5
American Supply Co.	51	American Supply Co.	51	American Supply Co.	51	American Supply Co.	51
American Tin Plate Co.	46	American Tin Plate Co.	46	American Tin Plate Co.	46	American Tin Plate Co.	46
American Type Foundry Co.	25	American Type Foundry Co.	25	American Type Foundry Co.	25	American Type Foundry Co.	25
Andrews & Johnson Co.	52	Andrews & Johnson Co.	52	Andrews & Johnson Co.	52	Andrews & Johnson Co.	52
Andrews, Perry, & Bro.	50	Andrews, Perry, & Bro.	50	Andrews, Perry, & Bro.	50	Andrews, Perry, & Bro.	50
Anthracite Mch. & Supply Co.	37	Anthracite Mch. & Supply Co.	37	Anthracite Mch. & Supply Co.	37	Anthracite Mch. & Supply Co.	37
Apex Equipment Co.	35	Apex Equipment Co.	35	Apex Equipment Co.	35	Apex Equipment Co.	35
Appraisal & Audit Co. of Amer.	30	Appraisal & Audit Co. of Amer.	30	Appraisal & Audit Co. of Amer.	30	Appraisal & Audit Co. of Amer.	30
Arctic Machine Co.	24	Arctic Machine Co.	24	Arctic Machine Co.	24	Arctic Machine Co.	24
Armstrong Mfg. Co.	24	Armstrong Mfg. Co.	24	Armstrong Mfg. Co.	24	Armstrong Mfg. Co.	24
Armstrong, R. S., & Bro.	38	Armstrong, R. S., & Bro.	38	Armstrong, R. S., & Bro.	38	Armstrong, R. S., & Bro.	38
Asphalt Ready Roofing Co.	47	Asphalt Ready Roofing Co.	47	Asphalt Ready Roofing Co.	47	Asphalt Ready Roofing Co.	47
Atherton Machine Co., A. T.	1	Atherton Machine Co., A. T.	1	Atherton Machine Co., A. T.	1	Atherton Machine Co., A. T.	1
Atkins, E. C., & Co.	45	Atkins, E. C., & Co.	45	Atkins, E. C., & Co.	45	Atkins, E. C., & Co.	45
Atlas Engine Works.	19	Atlas Engine Works.	19	Atlas Engine Works.	19	Atlas Engine Works.	19
Audel, Theo., & Co.	26	Audel, Theo., & Co.	26	Audel, Theo., & Co.	26	Audel, Theo., & Co.	26
Audit Co. of New York.	29	Audit Co. of New York.	29	Audit Co. of New York.	29	Audit Co. of New York.	29
Aultman Co., The.	42	Aultman Co., The.	42	Aultman Co., The.	42	Aultman Co., The.	42
Austin Mfg. Co.	42	Austin Mfg. Co.	42	Austin Mfg. Co.	42	Austin Mfg. Co.	42
B		B		B		B	
Babcock & Wilcox Co.	19	Babcock & Wilcox Co.	19	Babcock & Wilcox Co.	19	Babcock & Wilcox Co.	19
Bacon Air Lift Co.	54	Bacon Air Lift Co.	54	Bacon Air Lift Co.	54	Bacon Air Lift Co.	54
Bader, E. B., & Sons Co.	1	Bader, E. B., & Sons Co.	1	Bader, E. B., & Sons Co.	1	Bader, E. B., & Sons Co.	1
Bader Fire Extinguisher Co.	51	Bader Fire Extinguisher Co.	51	Bader Fire Extinguisher Co.	51	Bader Fire Extinguisher Co.	51
Bader, Adamson & Co.	5	Bader, Adamson & Co.	5	Bader, Adamson & Co.	5	Bader, Adamson & Co.	5
Baldy-Libby Co.	10	Baldy-Libby Co.	10	Baldy-Libby Co.	10	Baldy-Libby Co.	10
Baldy, J. S., & Co.	25	Baldy, J. S., & Co.	25	Baldy, J. S., & Co.	25	Baldy, J. S., & Co.	25
Baldy, John T., & Co.	9	Baldy, John T., & Co.	9	Baldy, John T., & Co.	9	Baldy, John T., & Co.	9
Bald Machinery Co.	10	Bald Machinery Co.	10	Bald Machinery Co.	10	Bald Machinery Co.	10
Baker, H. C., & Co.	36	Baker, H. C., & Co.	36	Baker, H. C., & Co.	36	Baker, H. C., & Co.	36
Baker, Sullivan & Hart.	36	Baker, Sullivan & Hart.	36	Baker, Sullivan & Hart.	36	Baker, Sullivan & Hart.	36
Baldwin Locomotive Works.	13	Baldwin Locomotive Works.	13	Baldwin Locomotive Works.	13	Baldwin Locomotive Works.	13
Ball Engine Co.	17	Ball Engine Co.	17	Ball Engine Co.	17	Ball Engine Co.	17
Ball & Wood Co.	17	Ball & Wood Co.	17	Ball & Wood Co.	17	Ball & Wood Co.	17
Baltimore Belting Co.	24	Baltimore Belting Co.	24	Baltimore Belting Co.	24	Baltimore Belting Co.	24
Baltimore Engine Co.	17	Baltimore Engine Co.	17	Baltimore Engine Co.	17	Baltimore Engine Co.	17
Balto. Fidelity Warehouse Co.	30	Balto. Fidelity Warehouse Co.	30	Balto. Fidelity Warehouse Co.	30	Balto. Fidelity Warehouse Co.	30
Baltimore-Maryland Engraving	25	Baltimore-Maryland Engraving	25	Baltimore-Maryland Engraving	25	Baltimore-Maryland Engraving	25
Balt. Shipbuilding & Dry Dock Co.	60	Balt. Shipbuilding & Dry Dock Co.	60	Balt. Shipbuilding & Dry Dock Co.	60	Balt. Shipbuilding & Dry Dock Co.	60
Baltimore Steam Packet Co.	56	Baltimore Steam Packet Co.	56	Baltimore Steam Packet Co.	56	Baltimore Steam Packet Co.	56
Barnes, W. F., & John Co.	6	Barnes, W. F., & John Co.	6	Barnes, W. F., & John Co.	6	Barnes, W. F., & John Co.	6
Barnett, G. H., & Co.	60	Barnett, G. H., & Co.	60	Barnett, G. H., & Co.	60	Barnett, G. H., & Co.	60
Barr & Egan.	6	Barr & Egan.	6	Barr & Egan.	6	Barr & Egan.	6
Barr, H. G.	10	Barr, H. G.	10	Barr, H. G.	10	Barr, H. G.	10
Barrett Mfg. Co.	28	Barrett Mfg. Co.	28	Barrett Mfg. Co.	28	Barrett Mfg. Co.	28
Barrett, C. O., & Snow Co.	41	Barrett, C. O., & Snow Co.	41	Barrett, C. O., & Snow Co.	41	Barrett, C. O., & Snow Co.	41
Bates, James, Sons.	41	Bates, James, Sons.	41	Bates, James, Sons.	41	Bates, James, Sons.	41
Bates Machine Co.	18	Bates Machine Co.	18	Bates Machine Co.	18	Bates Machine Co.	18
Beach, H. W.	49	Beach, H. W.	49	Beach, H. W.	49	Beach, H. W.	49
Beckley, A. J., Co.	44	Beckley, A. J., Co.	44	Beckley, A. J., Co.	44	Beckley, A. J., Co.	44
Belmont Iron Works.	44	Belmont Iron Works.	44	Belmont Iron Works.	44	Belmont Iron Works.	44
Benbow Co.	59	Benbow Co.	59	Benbow Co.	59	Benbow Co.	59
Bennett, G. L.	36	Bennett, G. L.	36	Bennett, G. L.	36	Bennett, G. L.	36
Berry Hill Min. Spg. Co., of Va.	1	Berry Hill Min. Spg. Co., of Va.	1	Berry Hill Min. Spg. Co., of Va.	1	Berry Hill Min. Spg. Co., of Va.	1
Bertch & Co.	10	Bertch & Co.	10	Bertch & Co.	10	Bertch & Co.	10
Bickford Drill & Tool Co.	10	Bickford Drill & Tool Co.	10	Bickford Drill & Tool Co.	10	Bickford Drill & Tool Co.	10
Big Brushy Coal & Coke Co.	52	Big Brushy Coal & Coke Co.	52	Big Brushy Coal & Coke Co.	52	Big Brushy Coal & Coke Co.	52
'Big Four'	56	'Big Four'	56	'Big Four'	56	'Big Four'	56
Bigelow, W. H.	52	Bigelow, W. H.	52	Bigelow, W. H.	52	Bigelow, W. H.	52
Bird, F. W., & Son.	45	Bird, F. W., & Son.	45	Bird, F. W., & Son.	45	Bird, F. W., & Son.	45
Bird, J. A. & W., & Co.	45	Bird, J. A. & W., & Co.	45	Bird, J. A. & W., & Co.	45	Bird, J. A. & W., & Co.	45
Bird, Wm. M., & Co.	8	Bird, Wm. M., & Co.	8	Bird, Wm. M., & Co.	8	Bird, Wm. M., & Co.	8
Birmingham Rail & Loc. Co.	38	Birmingham Rail & Loc. Co.	38	Birmingham Rail & Loc. Co.	38	Birmingham Rail & Loc. Co.	38
Blackley, A. B., & Co., Ltd.	1	Blackley, A. B., & Co., Ltd.	1	Blackley, A. B., & Co., Ltd.	1	Blackley, A. B., & Co., Ltd.	1
Blackles Mfg. Co.	17	Blackles Mfg. Co.	17	Blackles Mfg. Co.	17	Blackles Mfg. Co.	17
Bloods, V. G.	34	Bloods, V. G.	34	Bloods, V. G.	34	Bloods, V. G.	34
Blois, J. E., Iron & Wire Wks.	45	Blois, J. E., Iron & Wire Wks.	45	Blois, J. E., Iron & Wire Wks.	45	Blois, J. E., Iron & Wire Wks.	45
Boomer & Bouchert Press Co.	33	Boomer & Bouchert Press Co.	33	Boomer & Bouchert Press Co.	33	Boomer & Bouchert Press Co.	33
Booth & Flynn, Ltd.	33	Booth & Flynn, Ltd.	33	Booth & Flynn, Ltd.	33	Booth & Flynn, Ltd.	33
Boston & Maine Railroad.	56	Boston & Maine Railroad.	56	Boston & Maine Railroad.	56	Boston & Maine Railroad.	56
Boston Belting Co.	24	Boston Belting Co.	24	Boston Belting Co.	24	Boston Belting Co.	24
Bourne-Fuller Co.	23	Bourne-Fuller Co.	23	Bourne-Fuller Co.	23	Bourne-Fuller Co.	23
Bourne, The.	46	Bourne, The.	46	Bourne, The.	46	Bourne, The.	46
Brown & Street Equipment Co.	37	Brown & Street Equipment Co.	37	Brown & Street Equipment Co.	37	Brown & Street Equipment Co.	37
Box 61							

PROPOSALS.

GALVESTON, TEXAS, Oct. 7, 1903.
SEALED PROPOSALS, in duplicate, for grade raising at Galveston, Texas, involving over 11,000,000 cubic yards of filling, will be received by the Chairman of the Grade Raising Board, until 2 P. M., December 7, 1903, and then publicly opened. For information apply to E. R. CHEESBOROUGH, Secretary Grade Raising Board, Galveston, Texas.
C. S. RICKE, Consulting Engineer.

FORT MYER, VA., October 23d, 1903.—Sealed proposals, in triplicate, for constructing Blacksmith Shop, Guardhouse and Extension to Riding Hall, will be received until 10 A. M. November 21, 1903. The U. S. reserves right to reject any or all bids or any part thereof. Information on application. Envelopes containing bids should be endorsed "Proposals for Buildings," addressed **CAPT. W. F. CLARK, Q. M.**

BOND SALE.

The City of Atlanta, Ga., offers for sale \$399,000 30-year Redemption Gold Bonds, denomination \$1000, coupons, July and January, payable in New York and Atlanta; interest, 4 per cent. Bonds to be dated January 1, 1904, free from city tax. Bids to be opened December 1, at 12 M., by the finance committee. Bids can be made for all or any part of said bonds, and must be accompanied by a certified check for five per cent. of the par value of the amount bid for. Successful bidders to pay for bonds allotted them December 30, 1903. Any further information cheerfully given. Address bids to
J. H. GOLDSMITH,
City Comptroller, Atlanta, Ga.

\$20,000 Water Works and Electric Light Bonds. Town of Belzoni, Washington County, Mississippi.

Sealed bids will be received by the Board of Mayor and Aldermen of the Town of Belzoni, Washington County, Mississippi, for the sale of **TWENTY THOUSAND DOLLARS (\$20,000) Six Per Cent. Twenty-Year "Serial" Water Works and Electric Light Bonds** up to 7 o'clock P. M., December 1st, 1903. The Board reserves the right to reject any or all bids. A certified check must accompany all bids for the sum of \$500. For any further information, address
S. CASTLEMAN, Mayor.

Water Works and Sewerage Bonds.

The Board of Mayor and Aldermen of Corinth, Miss., will issue \$55,000 of Water Works and Sewerage Bonds on the 23d instant, which will be dated January 1st, 1904, and payable January 1st, 1924, bearing interest at 5% per annum, payable annually. They will be sold at its Mayor's office to the highest bidder for cash, on the 7th day of December, 1903.
T. K. YOUNG, Mayor.

TENDERS.

Sealed Tenders, marked "Quarry Tenders," will be received by the undersigned on or before noon of the 15th day of December, 1903, at the office of the Dominion Iron & Steel Co., Limited, Sydney, Nova Scotia, Canada, for the quarrying, crushing and delivering f. o. b. vessel of from 200,000 to 400,000 tons of limestone per year, to be taken from the quarries of said Company at Marble Mountain, Inverness County, Cape Breton, as per specifications. Copies of the specifications can be seen at the Company's office, together with blueprints and photographs showing quarry and plant. Work to begin January 1, 1904. Contract to be for three years. The party whose tender is accepted will be required to give a bond to the Company with a sufficient surety or sureties of due performance of his contract. The lowest or any tender not necessarily accepted.
(Signed) DAVID BAKER, General Manager
Dominion Iron & Steel Co., Limited.

GEO. W. E. THORPE,
HENRY BUSCH,
F. W. WESSELS,
Finance Committee.

The City of Aiken,

FINANCIAL DEPARTMENT.

Bids for \$30,000 4 Per Cent. Bonds.

SEALED bids will be received by the Finance Committee of the City Council of Aiken, S. C., till noon, Thursday, Dec. 10, 1903, for the purchase of \$30,000, or less, Water Works and Sewerage Coupon Bonds, denominations being twenty (20) Five Hundred (\$500) Dollar bonds, twenty (20) One Thousand (\$1000) Dollar bonds, bearing Four (4) per cent. interest from Nov. 2, 1903, payable "in legal tender money of the United States of America," "forty (40) years from date, with the privilege of redemption after twenty (20) years," as provided by law. Interest payable semi annually at the office City Clerk and Treasurer Aiken, S. C. Bids must include accrued interest at time of sale. The bonds are duly authorized by law, and all the legal requirements of the

Statutes of South Carolina complied with. The right to reject any and all, or a part of any and all bids, is hereby reserved by the City Council, by whom this sale is to be authorized and approved before the same is perfected. A certified check for Five Hundred (\$500) Dollars, payable to order The City of Aiken, must accompany each bid as a guarantee of good faith. Legal advisers, Messrs. Hendersons, Aiken, S. C. Address all letters to the Chairman.

GEO. W. E. THORPE,
Chairman Finance Committee.
Aiken, S. C., Nov. 2d, 1903.

PITTSBURG
METER CO.

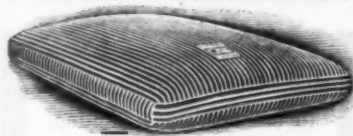
MAKERS OF

WATER METERS
AND
GAS METERS

OFFICE AND WORKS:

East Pittsburg, Pa.

For \$9.50 Cash



YOU

can purchase a full size

Original Perfection
Mattress

GUARANTEED to be better than a \$50 Hair Mattress. **MONEY BACK** after sixty nights' trial if not entirely satisfactory.

This Superior Mattress is used as A **STANDARD** by the Baltimore City Fire Department.

For sale by all reputable dealers.

Manufactured by

Perfection Mattress Co.

Birmingham, Ala., (Home Office) 1602-10 First Ave.
 Baltimore, Md., 205-09 E. Falls Ave.
 St. Louis, Mo., 321 N. Main St.

BREMEN MERCHANT, in close connection with the managers of the principal industrial concerns, as well as with farmers and sugar manufacturers in the interior, is desirous of representing first-class American firms for the sale of industrial and agricultural machinery in Germany. Highest references on application.
 Address H. B., P. O. Box 903,
NEW YORK CITY.

CEMENT EDITION.

34 pages, 10x12, of splendidly illustrated matter, educational in its scope, covering in a comprehensive way the wonderful growth of the American cement trade and the many remarkable aspects of this remarkable industry. Will be mailed on receipt of 10 cents and mention of this paper.

THE WESTERN MINER & FINANCIER.
 Cooper Building, Denver, Colorado.

If you wish to keep posted on the progress of the South, read the **MANUFACTURERS' RECORD.** Price \$4 a year.

Close mill connections enable us to furnish direct from mills when desired:

ANGLES,
 BARS,
 BANDS,
 BEAMS, CHANNELS,
 ZEES, TEES,
 HOOPS,
 PLATES,
 Etc.

RAILS,
 RIVETS,
 SHAFTING,
 SHEETS,
 STRIP STEEL,
 STEEL TIRE,
 TUBES,
 Etc.

**THE
 BOURNE-FULLER CO.**
**IRON, STEEL,
 PIG IRON,
 COKE.**
Cleveland, Ohio.

Daily Capacity
 150 Cars.

JOHN H. KIRBY, President.

Capital
 \$10,000,000.00

Kirby Lumber Co.

General Office, Houston, Tex.

MANUFACTURERS OF

Saw Products of Long
Leaf Yellow Pine Trees.

We can S4S up to 20x30.

We can Saw up to 70 ft.

Sixteen mills in operation, two more building. These mills are located on two of the greatest railway systems in the South, reducing difficulty arising from lack of cars to a minimum.

We are the Largest Producers of Yellow Pine Lumber in the World.

Address all correspondence to

V. A. LONGAKER,

General Sales Agent,

HOUSTON, TEX.

No order too large for our facilities or too small for our prompt attention.

Correspondence Solicited.

You Should Only Buy
 One Piano in a Lifetime,

and if would interest yourself enough to see the

Stieff Piano

you would find in it an instrument that would more than realize your ideals.

Only One Grade and an Honest Price.

PAY (Cash or Monthly)

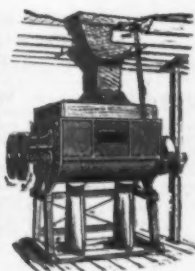
and in short time you will own a **High Grade Piano, fully guaranteed.** Other Pianos, used and new.

Uprights.....\$100, \$150 up.
 Squares.....\$25 up.

STIEFF, 9 N. Liberty St.

BALTIMORE, MD.

**THE BROUGHTON
 DRY MIXER**
 FOR
 Hard Plaster, Cement, Paint, &c.
W. D. DUNNING,
 98 W. Water St.,
 SYRACUSE, N. Y.



**The Boomer & Boschert
 KNUCKLE JOINT
 PRESS**



For Baling Cloth, Paper, Yarn, &c.
 Or for any other purpose requiring great pressure.

BOOMER & BOSCHERT PRESS CO.
 386 W. Water St., Syracuse, N. Y.

ESPECIAL QUALITY IN
STEEL CASTINGS.

"SEABOARD" STEEL CASTINGS show physical qualities equal to the finest forgings. Our raw material is most carefully selected and our **PRODUCT** fills the highest requirements.

OPEN HEARTH STEEL CASTINGS, for locomotives, shipbuilding, electrical, pump and general machinery purposes. Subject to U. S. Government, Lloyd's, Railroad and other specifications.

Seaboard Steel Casting Company, Chester, Pa.

SPECIAL Advertisements OF GENERAL Interest.

OPPORTUNITIES FOR INVESTORS.

ADVERTISING RATES FOR SPECIAL ADVERTISEMENTS:

Inches	1 time.	2 times.	3 times.	4 times.
1.....	\$1.75.....	\$3.00.....	\$4.25.....	\$5.00.....
2.....	3.00.....	5.50.....	8.00.....	10.00.....
3.....	4.25.....	8.00.....	11.75.....	15.00.....
4.....	5.50.....	10.50.....	15.50.....	20.00.....
5.....	6.75.....	13.00.....	19.25.....	25.00.....
6.....	8.00.....	15.00.....	22.00.....	28.00.....
1/4 page (13 in.).....	16.00.....	30.00.....	42.00.....	52.00.....

Coal, Iron and Timber Lands.

2000 Acres 38 inches Clean Coal.

High Grade, on railroad near Birmingham, Ala. \$11 acre.

ADDRESS

B. F. EBORN, Birmingham, Ala.

Southern Timber Lands

20,000 acres virgin long-leaf yellow pine, close grain, long bodies, trees from 12 to 28" diameter; carefully cruised by one of my woodsmen and guaranteed to cut an average of 6500 ft. per acre, running from 5000 to 8000 ft.

Lays on both sides of a floating stream, fine mill site with good boom facilities, 4 miles from railroad. Road will extend to mill site upon establishment of a 50,000-ft. plant. Country is hilly, but rolling, and not broken; timber can be cut, logged and floated to mill site for \$4 per M, average—much of it for \$2 to \$3 per M. I will sell this timber, guaranteeing delivery of 120,000,000 ft., for \$11 per acre, fee simple, or join practical mill men with equal capital in the organization of a company to manufacture same. Correspondence invited from such, and none others.

3000 acres Louisiana red cypress, 2 to 4 miles from Mississippi river and railroad; cruised and guaranteed to cut 10,000 ft. average per acre. \$3.50 per M.

5000 acres Louisiana red cypress, not so accessible, for \$3 per M.

100,000 acres mixed cottonwood, cypress and ash, oak and gum; cut 5000 to 9000 ft. per acre. Land fine as any in the South for farming purposes when cleared; readily salable at \$15 to \$25 per acre, rent for \$5 to \$7 per acre. Will sell as a whole \$7 per acre, or in 5000-acre tracts at \$8 per acre.

Will contract to buy back the land at \$10 per acre as fast as cleared, in any size tracts.

Correspondence invited only from actual buyers with the money.

WILLIAM R. TAYLOR,

603 Hennen Building, New Orleans, La.

Parties desirous of investing in Timber, Coal, Lime or Cement properties in West Virginia are respectfully invited to apply to

R. P. PEARSON,

Mining Engineer and Surveyor.
Parsons, Tucker Co., W. Va.

Buyers and Sellers

of Coal, Mineral and Timber propositions will consult their interest by addressing

B. F. EBORN,

113 N. 21 St., Birmingham, Ala.

FOR SALE.

In Osceola and Brevard Counties, Florida.

300,000 ACRES Will cut 3000 feet Long Leaf Yellow Pine per acre. Also 100,000,000 feet Large Cypress. Price \$2.00 per acre. After November 1st price will be \$2.50. Will divide.

J. R. PUTNAM, Portland Block, Chicago.

3500 Acres Fine Coal Land

on R. R. 30 miles of Birmingham, Ala., 6 miles of Warrior River; carries fine 7 foot vein on 500 acres, balance 3000 acres carries 4 to 5 foot vein. Gilt edge. Easily mined. \$15 acre.

Address

B. F. EBORN,

Birmingham, Ala.

Southern Investments

COAL and IRON Properties are my Specialty.

If you have a dividend-paying property to sell or wish to buy, write me. The larger the deal the better.

BANK REFERENCES FURNISHED.

R. C. WATSON, 401-402 Empire Bldg., ATLANTA, GA.

COAL MINE

200 tons daily output, modern equipments, finest coal in State. Brings at mines \$1.50 ton No. 2 lump, \$2.50 ton No. 1 lump. 5-ft. vein, clean coal. Price \$45,000, 1/2 cash, bal. 1-2-3 yrs. 6%. B. F. EBORN, Birmingham, Ala.

10,000 or 15,000 Acres Coal Lands.

5 Veins.

On Warrior River, 18 miles from Birmingham, Alabama \$15 acre.

B. F. EBORN, Birmingham, Ala.

GOING COAL MINE.

18,000 acres. 5 veins coal. Modern equipments. 6500 tons monthly.

ADDRESS

B. F. EBORN, Birmingham, Ala.

COAL LAND

25,000 Acres, \$3 Acre.

Coal and Timber land, perfect fee simple title, on R. R. Warrior Coal Field, Ala. Not prospected. Address

B. F. EBORN,

BIRMINGHAM, ALA.

Water Powers and Mill Sites.

The W. T. Weaver Power Company, ASHEVILLE, N. C.

now offers electric power, at very low rates for manufacturing purposes, from its Power Station on the French Broad River, four miles from the City of Asheville, N. C.

This Development Yields
3000 Horse Power.

Good Factory Sites, Cheap Power, Abundant Labor of the best quality, Good Railroad Facilities, Ideal Climatic Conditions, Pure Water for Bleacheries and Finishing Plants from a mountain creek running through the premises, having a discharge of 5,000,000 gallons in 24 hours, are some of the merits of this locality that will command the consideration of manufacturers.

For particulars, address

W. T. WEAVER, President.

ASHEVILLE, N. C.

Water Powers for Sale.

1st. Island Ford Water Power on Deep River, with 147 acres of land, three miles from D. & C. R. R.
2d. Carbondon Water Power on Deep River, with four acres of land, on D. & C. R. R.

At either location from 1000 to 1500 H. P. can be developed with little outlay of capital. Both ideal sites for factories or electric plants.

CARTHAGE INVESTMENT CO.

CARTHAGE, N. C.

UNRIVALLED LOCATION FOR INDUSTRIAL ENTERPRISES WATER POWER 24 Hours Use Daily.

\$15.00 per Horse Power per Year.
46 Feet Head and Fall at

Weldon, North Carolina

80 miles from Norfolk, Va. 12 hours travel from New York City. At junction of A. C. L. and S. A. L. Railway Systems. Steamboat to tidewater.

Free Building Sites, Banks, Schools, Electric Lights and Electric Power.

ROANOKE NAVIGATION & WATER POWER CO.

JAS. W. WILSON, President,
Write for Booklet. WELDON, N. C.

FOR LEASE,

On Favorable Terms,

the valuable COTTON MILL PROPERTY known as Gray's Mills, on the Patapsco River, consisting of a four-story stone mill and auxiliary buildings, with newly installed 300 horse water, steam and electric power plant, suitable for any kind of textile manufacture.

For further information address

V. G. BLOEDE,

Station "D", BALTIMORE, MD.

Miscellaneous Properties and Investment Opportunities.

WE OWN IDEAL VIRGIN RICE LAND,

fifteen miles from New Orleans, on the Southern Pacific Railroad. Plenty of water for irrigation, Rich Soil suitable for Cotton, Corn, Sugar and Truck. Will sell very cheap now on long and easy payments, in tracts to suit. Special inducements to organize planting companies. Write at once for particulars.

O. H. WINEGAR, LLOYD POSEY,
Cont. Nat. Bank Bldg. Masonic Temple,
St. Louis, Mo. New Orleans, La.

FOR QUICK ACCEPTANCE.

We offer for sale an up-to-date milling plant, with dry kilns and planing mill attached. At the junction of two trunk lines of railroad. Timber has been estimated to cut about 22,000,000 feet. Rate to Brunswick, Ga., a deep water port, \$6.00 per car. Price \$25,000 cash.

This is a going concern and is ready for buyer to step right into a paying business. Good reasons given for wanting to sell.

BROSTON, FENDIG & CO.,

Brunswick, Ga.

FOR SALE.

Valuable Cotton Seed Oil Mill

of the McNally Manufacturing Oil Company, capacity seventy (70) tons per day, and also a valuable manufacturing site adjoining same both situated on the southern branch of the Elizabeth River, near South Norfolk, Virginia and both having Belt Line connection and deep water front. Mill well equipped with machinery, boilers, engines, etc., and ready to begin operations. Sale to be made on the premises December 2nd, 1908, at 12 o'clock M., to the highest bidder for cash. For further particulars apply to

R. H. BAKER, Jr.,

GEORGE PILCHER,

JOHN B. JENKINS,

Trustees in Bankruptcy,

Norfolk, Virginia.

FOR SALE.

A New and Up-to-date Cotton Mill, situated at Monroe, La., on Missouri Pacific Railroad and Ouachita River (navigable to large steamers).

Mill of standard construction and containing latest improved machinery. The present equipment of 2500 spindles and 75 looms has been run one year, and is in the best of condition. Building, power plant, slubber, pickers, spoolers and operatives' houses sufficient for a 5000 spindle, 150 loom mill. Dynamo, machine shop equipment, slasher and cloth room machinery adequate for 1000 spindles and 300 looms. Reason for selling: Company is a co-operative one with stock widely distributed, and it is impossible to get sufficient number of stockholders to agree to put up necessary funds to complete equipment and enlarge mill sufficiently to put it on a good paying basis. Plant as it now stands, with all accessories, including good flowing artesian well, cost \$100,000. Will sell cheap for cash, or part cash and balance on easy terms, to parties who will take property and increase sufficiently to put it on a good paying basis. Exceptionally low freight rates to northwest. Address

OUACHITA COTTON MILLS, Monroe, La.

FOR SALE.

2000 Barrels Coal Tar.

CARLOADS AND LESS.

ARMITAGE MFG. CO., RICHMOND, VA.

CHARCOAL

For Sale by Carload.

J. A. MATHIEU,

Georgetown, S. C.

To Paper Makers!

The undersigned have from 15,000 to 50,000 pounds of redried, damaged cotton cloth, much of the fibre sound, which they desire to have made into wrapping paper. Correspondence solicited.

ADDRESS

THE HITT SALVAGE CO., Atlanta, Ga.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price \$4 a year.

The Schwarz-System Brick Company,

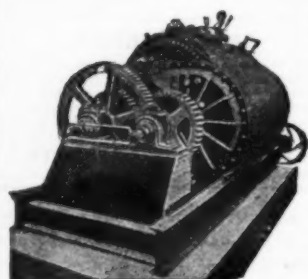
SAND-LIME BRICK ENGINEERS.

Factories Built by Us are Built Right and Run Right.

Chemicals Are Not Necessary to
Make Good Sand-Lime Brick.

6-8-10 BRIDGE ST.,
MARITIME BLDG.,

New York.



"Millions for Farmers"

TEXAS
TOBACCO
FACTS

Write for Full Information to

Exhaustive tests prove that the finest grade of

Filler and Wrapper can be grown in East Texas on line of

The SOUTHERN PACIFIC

Soils and Climate similar to famous Vuelta Abajo District of Pinar del Rio, Cuba.

T. J. ANDERSON, General Passenger Agent,

HOUSTON, TEX.

"Beware of the wild cat's claws.
Follow business lines and success
will follow mining investments.

A. M. GRAHAME

Mines Examined and Reports Furnished

A first-class list of gold and other mining
properties in North Eastern Georgia
for sale or lease on royalty.

Address, CLARKSVILLE,
Habersham Co., Ga.

CAPITAL WANTED.

I would like to get into correspond-
ence with a party desiring to invest
seventy-five or a hundred thousand dol-
lars in one of the best manufacturing
plants in the South. I will invest an
equal amount.

I understand the business thoroughly,
both practically and theoretically.
The business will stand the highest
reference from Dunn or Bradstreet
Commercial Agencies. Address

PRACTICAL MANUFACTURER,
Care Manufacturers' Record.

FOR SALE A SAW AND PLANING MILL

Proposition on Railroad within 30 miles of
Mobile, Ala. Capacity of saw mill, 25,000 feet
per day, dry kiln and planing mill, 12,500 feet.
18,000 acres longleaf yellow pine timber lands
that will estimate between 90,000,000 and 100,
000,000 feet. 10,000 acres additional can be ac-
quired at reasonable prices in the same terri-
tory, and the whole can be logged with less
than 9 miles railroad. To a party with suffi-
cient capital to handle it this offers an unex-
ceptional opportunity to get into a going and
profitable business. Reason for selling, other
interests demand undivided attention. Write
quick. This is a good thing and will not last
long. Address

BOX 632, Mobile, Ala.

Valuable Mineral Property for Sale
The N. C. Bessemer Co. has 3700 acres of land
for sale in McDowell County, N. C., on the South-
western R. R. containing large quantities of
hard and soft timber, an immense amount of
marble and lime stone, fine water power and
large quantities of hard and soft iron ore. Veins
from 4 to 10 feet thick, analysis runs high in iron;
also indications of copper. For further descrip-
tions, address,

J. C. McCaskill, Maxton, N. C.

WANTED.

Logging Contractors. Saw Mill Contractors.
We have fifteen million feet of Cypress
Timber which we desire logged and sawn. If
interested either in logging or sawing write,
giving size and kind of steam logging machine,
or size, make and capacity of saw mill. A
band saw mill is required. Give references.
J. S. BAILEY & CO., Abbeville, Ga.

FOR SALE.

Roller Mill & Woodworking Factory
In large Va. town for sale, for division.

Mill, large 4-story brick building. Nordyke
& Morman Co. machinery. 100 bbls. flour and 400
bus. meal per day. Factory, large 3 story brick
building. H. B. Smith machinery. Fine water
power for running both mill and factory. Plenty
of water for doubling capacity. On Baltimore &
Ohio Railroad and Chesapeake & Ohio Railroad.
Side track at doors. Fine grain and stock-raising
county. For price and particulars address

M. B., care Manufacturers' Record.

Boiler Plant for Sale.

An up-to-date Boiler and Sheet Iron
Manufacturing Establishment, formerly
owned by M. Zier & Co., of New Albany,
Ind. Equipped with air and electric im-
provements and a stock of merchandise
on hand. Ready to begin work at once.
Can be bought at a great bargain.

Apply to HERMAN JOSEPH,
316 East Main St., Louisville, Ky

BRICK YARD for Sale.

30,000 capacity; Chambers machine with all ne-
cessary kilns, etc.; 20-year lease on 20 acres of
clay; good local demand and within 47 miles of
Atlanta; best railroad facilities; wood plentiful at
\$1.75 per cord; yard now in operation at a good
profit; object of selling, other business requiring
our attention. Price reasonable. Address
CARTERSVILLE BRICK CO., Cartersville, Ga.

Patent on Portable Stove for Sale. For Laundry and heat-
ing rooms; burns wood, charcoal or coke; sliding
top and pipe and handles to carry it; plain to make.
I will sell at reasonably low price. Write to E. C.
Leonard, Thompson, Susquehanna Co., Pa.

FOR SALE CHEAP—Good Circular Saw Mill. Mill
50,000 ft. daily capacity. Clark Bros make.
Saw mill complete. Steam feed, gang edger, live
rolls, good planer, saws, tools and belts. Every-
thing in first-class condition. Will be sold very
cheap. F. E. ROWLEY, Port Allegany, Pa.

Bargains in Machinery

FOR IMMEDIATE DELIVERY.

BOILERS.

- 1 267 H. P. Abendroth & Root, 150 lbs. pressure.
- 1 250 H. P. and 200 H. P. Heine, 150 lbs. pressure.
- 1 72"x16" return tubular boiler, 105 lbs. pressure.
- 1 66"x15" return tubular boiler, 100 lbs. pressure.
- 2 42"x14" return tubular boilers, 100 lbs. pressure.
- 1 vertical boiler, 50 H. P.

ENGINES.

- 1 22x48 Hewes & Phillips Corliss.
- 1 17x42 Brown, cut-off, 100 r. p. m.
- 1 20x48 Harris Corliss.
- 1 14x28 Delamater Corliss.
- 1 13x21 Buckeye, tangye bed, 125 h. p.
- 1 16x24 Atlas automatic.
- 1 9x18 Climax automatic.
- 1 16x30x48 Hamilton Corliss, tandem.
- 1 13x20 1/2 x15 Armstrong & Sims, c. c.
- 1 13x19x15 McIntosh & Seymour, tandem.

COMPRESSORS.

- 1 24 and 24x30 Rand Straightline type C, steam
driven, 1320 ft. free air.
- 1 12 and 14 1/2 x14 Ingersoll-Sergeant.

ELECTRICAL.

Send for our complete list of Generators and Mo-
tors of all types and voltages.

THOMPSON SON & CO.

114-118 Liberty St. NEW YORK CITY.

FOR SALE.

- | | | |
|------------------|-----------------------------|-------|
| BOILERS — | 80 h. p. Hor. Tubular..... | \$240 |
| | 250 " Watertube | 440 |
| ENGINES — | 30 " McIntosh & Seymour 160 | |
| | 15 " Gas Engine, "Otto" 180 | |
| | 60 " Westinghouse..... | 280 |
| | 125 " N. Y. Safety..... | 680 |
| | 175 " Corliss..... | 980 |
| DYNAMOS — | 120 lights Edison..... | 138 |
| | 180 " Onondaga..... | 135 |
| | 200 " Mather..... | 150 |
| | 270 " Edison..... | 190 |
| | 510 " Edison..... | 298 |
| | 1000 " Edison..... | 540 |

American Electric Supply & Mfg. Co.
27 Thames St., New York City.

MENGEL'S MACHINERY EXCHANGE

15 H. P. Geyser Portable Boiler and Engine on
wheels. 25 H. P. Portable Duval on skids. 10
H. P. Baxter Engine and Boiler combined. 55 H.
P. White & Middleton Gas or Gasoline Engine,
12" by 36". 60 H. P. Hamilton-Corliss Engine,
directly connected to 25-ton Linde Ice Machine.
5 and 10-ton Vertical Compressors. 4 25 and 35
H. P. Horizontal Engines. Sharp's Collar and
Cuff Ironer. Band Starcher and Ironer. 50 gal.
Copper Starch Kettle. 60-light Dynamo. 25 110
volt Manhattan Arc Lights. Cylinder and Job
Printing Presses. Paper Cutters. Complete
Plants and Machinery of all kinds Bought, Sold
and Exchanged. Nearly new 25 H. P. White &
Middleton Marine Gasoline Engine.

Mengel's Mach'y Exchange, 12 E. Lombard St., Baltimore Md.

FOR SALE.

Davis Calyx Drill,

Class F, with appurtenances and 10 H. P.
locomotive type Boiler on wheels,
to run drill.

This drill is used for exploiting for minerals
and for driven wells, and is very complete in
all its appurtenances. It has been in use
about ten months with best of care, and was
new when purchased. Its capacity is guaran-
teed for 600 feet, but will bore deeper with
sufficient drill rods. It cuts a 4 1/2" hole and
3" core; 306 feet of drill rods, 131 feet of 5"
extra black pipe for casing. Drive head and
shoe. Cost complete over \$1800. Will sell for
\$900 f. o. b. cars Sylva, N. C.

R. L. MURRAY, Waynesville, N. C.

80 H. P. Special Electric NEW ERA GAS ENGINE

with friction clutch. Nearly new. Cheap if
taken soon. We need the room.

THE CHAS. A. STRELINGER CO.

96 to 110 Bates Street, Detroit, Mich.

FOR SALE AT HALF PRICE.

One brand new Lapping Machine, in perfect
condition.

HANNA & KALMBACH, New Orleans, La.

Second-hand Dynamos, Motors and
Electrical Appliances. All money sav-
ers. Repair anything. Have you a
Dynamo or Motor for sale?

GUARANTEE ELECTRIC CO.

133-139 S. Clinton St., CHICAGO.

STEAM PLANT BARGAIN,

AT ZENIA, O.

We offer the following for delivery
December 1st.

Boilers.

3 72x16 Horizontal Tubular Boilers—2
allowed 95 lbs. steam, 1 allowed 100
lbs. steam. 3 Pumps for same. 1 large
Heater.

Engines.

1 fine 16x42 left hand Hamilton Corliss
Engine. 1 15x15 Center Crank Phoe-
nix Automatic, fine order. 1 8x12
Ball Automatic Centre Crank, in fine
order. Belting used on above and on
electric machines.

Shafting.

1 Line 5" Shafting with floor stands,
Clutch Pulleys and other Pulleys. 1
Idler. For full particulars write us at
Cleveland, O.

Cleveland Belting & Mach. Co.
CLEVELAND, O.

ENGINES—Compound.

- 1 14 & 25x16 Ball & Wood, self-contained.
- 1 14 & 23x16 Tandem Ames.
- 2 13 & 23x18 Tandem Williams.
- 1 13 & 20 1/2 x15 Cross Armstrong & Sims.
- 1 13 & 19x15 Tandem McIntosh & Seymour.
- 1 12 & 21x16 Cross Erie Ball.
- 1 18 & 30x16 Westinghouse.
- 1 16 & 27x16 Westinghouse.
- 1 14 & 24x14 Westinghouse.
- 1 13 & 22x13 Westinghouse.

Simple.

- 1 18 1/2 x18 Armstrong & Sims.
- 2 16x16 Ball & Wood.
- 1 15 1/2 x24 Buckeye Tangye frame.
- 1 14 1/2 x24 Buckeye Tangye frame.
- 1 14x16 New York Safety Power Co.
- 2 13x18 Harrisburg Ideal.
- 1 11x12 McIntosh & Seymour.
- 1 9 1/2 x10 Armstrong & Sims.

BOILERS.

- 1 350 H. P. Franklin Water Tube, 140 lbs.
- 2 66x16 Return Tubular.
- 2 54x16 Return Tubular.

Rossiter, MacGovern & Co., (Inc.)

17 Battery Place, New York City, N. Y.

BRANCH OFFICES:

84 State St., BOSTON, MASS.
Missouri Trust Bldg., ST. LOUIS, MO.

FOR SALE.

Fifty Whitin Welman Top Flat Cards,
with 40 tops 40 ins. wide. Cylinder 42
x40 ins. Doffer 40x18 ins. Floor space
8 ft. 3 ins. x5 ft. 2 ins., with collers.
Production 135 lbs. per day. Some of
these cards are only 3 years old, bal-
ance 8 years. They can be seen run-
ning. Also 150 sets Steel Clothing in
extra good condition; 100 Doffers; 150
Mason Looms, 44"; 10 Ashworth Re-
volving Top Cards. For full informa-
tion and price apply to

WM. J. DUNN,
Fall River, Mass.

FOR SALE—ENGINES.

1 1/2 x24 Cooper automatic; 9x14 Atlas automatic;
12 1/2 x24 slide valve; 14x42 Corliss engine; 11x16
center crank; 13 horse Russell traction; 10 horse
traction; 25 horse Bland skid engine and boiler;
20 horse Nagle portable engine and boiler; two 14 1/2
x24 Porter-Allen engines; one 75 horse tubular;
40 horse; 25 horse; 50 horse; three 12 horse por-
table; one fire engine, Cole Bros. make. One 6
horse new Scotch boiler; 6 horse Scotch boiler
and engine mounted on skids. One heavy boiler
plate punch, all complete, \$150. One McGowan
duplex pump, 2 1/2" suction, brass cylinders. 200
horse Stilwell & Bierce heater. 150 horse Brown-
ell heater. 3 horse gasoline engine. 100 boilers
and engines, different sizes, at one-third their
actual value.

D. L. CASEY MACHINE CO.
SPRINGFIELD, OHIO.

Blower Bargains.

Special offer in Roots Second-Hand
Blowers, all sizes up to No. 5.

Address H. M. PAPWORTH,
120 Liberty St., New York.

For Sale

At a Sacrifice.

One 1 1/2 yd. Bucyrus Steam
Shovel in good condition.

One 10"x16" Hoagland Rock
Crusher.

For detailed information, and
specifications, address

The Cameron & Barkley Co.

Charleston, S. C.

FOR SALE.

2 25 H. P. and 2 50 H. P. balanced valve centre
crank engines.
1 12 H. P. and 2 15 H. P. locomotive boilers and
engines on wheels.
1 15 H. P. Peerless traction engine.
1 10 H. P. locomotive boiler on wheels.
1 90 H. P. locomotive boiler.
2 New Era graders, with 25 H. P. traction engines.
Earth handling machinery, dump cars, railway,
mining and contractors' equipment of every de-
scription.
If you want to buy or sell contractors' plant of
any description, we can help you. Correspond-
ence solicited.

CONTRACTORS EQUIPMENT CO.

Betz Building, Philadelphia, Pa.

FOR SALE.

Five Blowing Engines.

36" Steam Cylinder, 54" Air Cylinder, 54" Stroke.
Engines were built by Cuyahoga Engine Works
and can be seen in operation at our plant at Co-
lumbus, Ohio. Can be delivered about Jan. 1st.

The Columbus Iron & Steel Co.
COLUMBUS, OHIO.

BARGAINS—CHEAP.

One Deane Duplex Comp. Pump, 14x26x11x18.
One 30x13 Blake Pattern Crusher, nearly new.
Three Hoisting Engines. Rails, Locomotives.

L. E. KENNEDY & CO.

17 Broadway, New York City.

Do These Interest You?

1 20x30 Horizontal Engine, \$800.
1 8 1/2 x10 Single Drum Mining Engine, \$400.
Other Hoisters, \$150 up.
Boilers, 36x96—42x90.

CONTRACTORS SUPPLY CO.

Park Building, PITTSBURGH, PA.

FOR SALE.

75 K. W. direct connected set.
115 volts, excellent condition,

J. C. M. LUCAS,

22 Light Street, BALTIMORE.

In Stock. Immediate Delivery. Rebuilt and Guaranteed.

20" 40" 60" Cross Compound Corliss. 28" 60" Wetherill Corliss. 35" 60" Wetherill Corliss. 21" 42" Rickards Corliss. 20" 48" Frick Corliss. 20" 42" Slater Automatic. 22" 32" Watertown. 18" 24" New York Safety Vertical. 16" 27" 16" Westinghouse Compound. 14" 24" 14" Westinghouse Compound. 12" 22" 12" Porter-Allen Automatic. 3 12" 20" 12" Westinghouse Compounds. 16" 36" Wetherill Corliss. 16" 42" Harris Corliss. 16" 16" Green Automatic. 15 1/2" 15 1/2" Armstrong & Sims. 15" 30" Buckeye. 15" 30" Russell Automatic. 15" 18" Taylor-Buck Automatic. 14" 24" Bell Automatic. 14 1/2" 14 1/2" Armstrong & Sims. 14 1/2" 14 1/2" McIntosh & Seymour. 13" 12" Armstrong & Sims. 13" 14" Vertical Fitchburg Automatic. 12" 24" Buckeye Automatic. 12" 15" Ide Automatic. 12" 12" Armstrong & Sims. 11" 15" Atlas Automatic. 11" 12" Chandler & Taylor Automatic. 10" 16" Buckeye Automatic. 10" 15" Atlas Automatic. 3 75 H. P. Westinghouse Standard Automatics. 2 65 Westinghouse Juniors. And many others. Stock is constantly changing. Let me have a list of your wants.

BOILERS.

2 66" 18" Horizontal Tubulars, 125 lbs. steam. 6 66" 16" Horizontal Tubulars, 120 lbs. steam. 2 150 H. P. Wood Water Tube, practically new. Large stock of new and second-hand Horizontal, Vertical and Locomotive Boilers. 2500 H. P. Goulet Heater. 3 500 H. P. Berryman Heaters. 69 large Steam Pumps, up to 12" suction, assorted sizes. 50 H. P. Otto Gas Engine. 40 H. P. Otto Gas Engine. Large stock of Dynamos, Iron and Wood Working Machinery. Send for Special Catalogue of 2300 pieces.

FRANK TOOMEY,

127-131 N. Third St. Philadelphia, Pa.

ENGINES.

One 18x24 Harris-Corliss Engine. One 16x20 S. C. Washington Iron Works' Engine self-contained. One 13x22 S. C. Cardwell Engine. One 11x18 S. C. Talbot Engine, Box-hed. One 14x16 S. C. Engine. One 11x15 Richmond Locomotive Works' S. C. One 11x14 A. & C. C. C. Engine. One 7x8 Vertical Engine. One 6 H. P. Vertical Engine. One 4 H. P. Vertical Engine. One 20 H. P. Farquhar Traction Engine. One 15 H. P. Aultman & Taylor Traction Engine. One 12 H. P. Birdsall Traction Engine. One 10 H. P. Frick Engine and Boiler mounted on wheels.

BOILERS.

One 80 H. P. High-Pressure R. T. Boiler, good for 120 lbs. steam working pressure. One 80 H. P. R. T. Boiler. One 70 H. P. R. T. Boiler. One 60 H. P. R. T. Boiler, Half-Front. One 50 H. P. R. T. Boiler, Full-Front. One 50 H. P. Economic Boiler. One 40 H. P. Economic Boiler. One 40 H. P. R. T. Boiler, Half-Front. One 25 H. P. R. T. Boiler, Half-Front. One 20 H. P. R. T. Boiler, Half-Front. One 15 H. P. Locomotive Type Boiler on wheels. One 30 H. P. Vertical, and several smaller sizes. Also several sizes of pumps and other machinery. The above are in A-1 condition. Write for particulars.

Jno. A. Waters & Co., Richmond, Va.

Second Hand Machinery

FOR SALE BY

Riverside Mills, of Augusta, Ga.

One AD Cook Artesian Well Pump, described as follows: one 8x36 steam cylinder, one air chamber, one discharge check valve. one 3 1/2" water cylinder, one set 3 1/2" valves, 155 3/4" I.J. casing and 7 number 4 poles. Two American Stokers complete engine, blowers, etc., also extra set tuyere blocks and dead bars. One Cotton Tie Rivetting Machine. One Vacuum Pump (Deane make). One No. 2 Nonpareil Mill. One Beane Pneumatic Coating Machine. One Simplex Engine. One Air Compressor (belt power) and Receiver. Three Chain Hoists. One DA DB Pulley 7 1/2" x 3 1/4" x 4 1/2" K. S. One DB Pulley 10 1/2" x 12" x 4" K. S. One DB Pulley 10 1/2" x 14" x 4 1/2" K. S. One Pulsometer described as follows: Suction 3", discharge 2 1/2", steam 3/4", to 1 1/2". Patented September 24, 1872 and March 8, 1881. Two 80 h.p. Boilers, fronts, grate bars, breast stays, rods, water columns, gauges, uptake and breeching complete.

PRESSURE PUMPS.

For high duty, outside packed, plunger type. Worthington Compound Duplex, 12" 17" 16" 15". Worthington Duplex, 18" 15" 18". Worthington Duplex, 17" 17" 15". Knowles Single, 10" 15" 10". Pumps for all services, over 200 in stock.

WICKES BROS.

93 Liberty Street, NEW YORK CITY.

Locomotives, New and 2nd Hand. Cableway 600 feet long complete. 200-ton 56 lb. Relaying Rails. 40-ton 70 lb. Relaying Rails. 45-ton 25 lb. Relaying Rails. 80-ton 30 lb. Relaying Rails. New Rails, all weights. 1 1/2-yd. Marion Improved "A." 1 1/2-yd. Bucyrus, 45-ton.

CLARK & HINES
Baltimore, Md.

R. R. Equipment, Mine and Contractors' Supplies.

BARGAINS IN DYNAMOS AND ENGINES

No. 321. One 18 1/2" 18 1/2" Armington & Sims Engine, complete with all oil cups and lubricator, cast iron sub-base, carrying wheel 76" dia. x 2 1/2" face; governor wheel 72" dia. x 10" face; 200 H. P. at 175 r. p. m., 90 lbs. steam pressure; together with one Stanley Electric Mfg. Co. Dynamo, 150 K.W., type 2 P, volts 1100 and 2200; alternations 2000, speed 1000; A. C. belted machine. No. 297. One 12" 13" Fitchburg Automatic Centre Crank Engine with granite sub-base; belt wheel 60" dia. x 1 1/2" face; governor wheel 48" dia. x 12" face; complete with all oil cups and fittings, together with one 35 Arc Light Thompson-Houston Dynamo, two pole, with automatic regulator, fitted with Thompson Air Blast, with pulley and oil cups, direct current. No. 37. Two Weston 15" 16" Center Crank Automatic Engines, fly wheel 72" 12". These engines are fitted up with shaft and clutches to throw either engine out or in, with one 60 K.W. Stanley Generator, A. C., 2200 volts, 1000 r. p. m., two phase. Also other engines, boilers, pumps, etc. Send for List No. 10.

All of the above machinery is in excellent condition, ready for immediate delivery. **Huntington Machinery & Supply Co.**
WILKES-BARRE, PA.

WANT TO SELL.—1 5-ton Electric Crane. 10 K. W. Motor, almost new. 1 G. & G. Air Compressor, 120 cubic ft. 2 Vacuum Pumps, 14x10x9 and 12x20x9, practically new. 1 200 H. P. Side and 1 100 H. P. Center Crank, 1 50 and 40 Side Crank, 4 10 to 25 H. P. Center Crank Self Contained Horizontal Engines. 1 8x10 Erie Ball Automatic Engine. 1 50 H. P. Vertical Boiler, excellent condition. 1 50 H. P., 2 50, 0 65, 4 125 and 5 150 Horizontal Return Tubular Boilers, excellent condition, complete. 1 8x5 D. C. S. D. Lidgerwood Hoister. 1 Webster Heater and Purifier for 500 to 1000 H.P. Boilers. Lot of high pressure and tank pumps, tanks, motors, dynamos, rock drills, rails, pipe, wire hoisting rope and cables. Anything you desire. **WANT TO BUY.**—6 150 and 125 H. P., 2 100 H. P. Horizontal Return Tubular Boilers, complete with stack. High Pressure and Tank Pumps. 1 500 H. P. Vertical Water Tube Boiler or 2 250 H. P. Wooden and Iron Tanks, Pipe, Wire Cables 1 1/2" and up in diameter; Rails—above to be second hand. **WE BUY ANYTHING YOU HAVE TO OFFER.** including Second-hand Vertical Boilers and Engines, if cheap and in good condition, from 4 H. P. up to 25 H. P.

ANTHRACITE MACHINERY & SUPPLY CO.
Long Distance Telephone. ALLENTOWN, PENNA.

FOR SALE.

Cotton Machinery Taken From a Plant Closing Down and as Good as New.

53 44" Lowell Looms.
86 36" Lowell Looms.
1 40" Curtis & Marble Finishing Machine.
1 45" Boomer & Boschert Baling Press.
1 45" Stafford Folder.
1 45" Dinsmore Sewing Machine.
3 Hughes & Russum Beavers.

Prices given on application. Machinery all on the floor and can be examined.

JAMES S. GARY & SON,
Baltimore, Md.

FOR SALE Cotton Machinery.
of Entire Plant.
154—LOOMS—154

10—QUILLING MACHINES—10

Complete **DYE HOUSE** and ALL other machines for weaving cotton. Thousands of feet **BELTING, SHAFING, PULLEYS, HANGERS, Etc., Etc.**

ALL will be disposed of at great sacrifice, as the entire plant has been sold for a wood working business.

American Oak and Hickory Reed Co.
NEWPORT, TENN.

FOR SALE—LOCOMOTIVES.

Baldwin 56-ton Consolidation, cyls. 20x24, first-class. Baldwin 50-ton Mogul, cyls. 18x24, first-class. Baldwin 22-ton 4-Driver, saddle tank switcher, 2-wheel front truck, cyls. 11x18; just overhauled. Porter 3-foot Saddle Tank, 6-driver, cyls. 10x16, weight 17 tons, very good order, quick delivery. Many other Engines, various gauges, geared and straight connected. Write for prices. **THE MALES CO.**, 256 Broadway, New York, N. Y.; 713 Traction Building, Cincinnati, O.

FOR SALE.

17 NEW 36" gauge 30,000 lbs. capacity Flat Cars

For Prompt Shipment.

Kilby Locomotive & Machine Works,
ANNISTON, ALA.

Wood-Working Machinery.

One 24x6 Pony Planer, Connell & Dengler. One 24x5 Pony Planer, J. A. Fay & Co. One 30" Cabinet Planer. One 30x12 Double Surfer, S. A. Woods. One 24x8 Atlantic Sizer. One 42" Back Knife Lathe. One Double end Tenoner. One No. 2 Tenoner. One Hall & Brown self-feed rip-saw. One heavy Berlin Machine Co. self-feed rip-saw. One 7" Moulder, 4 sided; S. A. Woods. One 10" Moulder, 4 sided, Hall & Brown. One 32" Hand Saw, Fay. One Swing Saw made by Allen. One 24" and 42" drum Invincible Sander. One 42" Columbia. One Scroll Saw. One Double Spindle Shaper, W. R. & R. Wonder Sanders and Wonder Glue machines. Gasoline Engines, all sizes. Shafting, hangers, belting, pulleys, etc.

PRICE MACHINERY CO.

507 Great Northern Bldg.

CHICAGO, ILL.

FLOUR MILL MACHINERY.

ROLLER MILLS—Double Stands.

One 6x12, three 6x18, three 9x18 Case. One 9x24, one 9x14 Allis. One 9x24 and one 9x30 Todds & Stanley.

IRON FRAME VERTICAL FRENCH ROLLER MILLS.

Two 30" Harrison, two 20" Sprout, Waldron. Three 18" Richmond, one 14" Sprout, Waldron.

WOOD FRAME HORIZONTALS.

One 22" Bradford, and one each, 18", 24", 30" and 36" Straub. Stock constantly changing. Write for what you want.

STRAUB MACHINERY CO.,
Cincinnati, Ohio.

FOR SALE.

1 20x36x48 Cross Compound Corliss.....\$3250
1 18x42 Harris Corliss, overhauled..... 1100
1 14x48 Corliss 600
1 20x60 Corliss, first-class..... 1000
1 500 H. P. Berryman Heater..... 150
1 400 H. P. Knowles Comp. Jet Condenser... 250
STEAM PUMPS, HEATERS, TRAPS.
1000' 1" Pipe in three coils, 1/2 net price new.
4 36" Davidson Vent. Fans \$25 each
1 No. 4 Pedrick & Ayre Compressor, used three months, \$350.
1 MORSE WILLIAMS ELEVATOR.....\$125
1 WHITTIER ELEVATOR..... 125

F. H. DAVIS & CO.

53 State Street, BOSTON, MASS.

For Sale.

90 36 in. Franklin-Wellman Cards, 45 of the 90 newly clothed and in good condition.
6 Potter & Atherton 36 in. Lappers, 3 intermediates and 3 Finishers, all in fair condition.
6 Railway Heads.
2 Hardy Card Grinders.
Also Drawing for 90 cards.
Call early as we need the floor space.

Continental Manufacturing Co.
CHARLOTTE, N. C.

FOR SALE.

1-54 in. x 12 ft. horizontal tubular boiler. 1-12x24 horizontal boiler. 1-12 and 14x10 fore and aft marine engine. 6 steam pumps—all sizes.

E. J. CODD CO., Baltimore, Md.

Bargains in Second-Hand Direct Connected Units.

One 50 K. W. "Eddy" generator directly connected to 13" 12" "Ames" horizontal automatic engine. 400 amperes, 125 volts, 250 revolutions. One 25 K. W. "Westinghouse" generator directly connected to 10" 11" "Ball" hor. automatic engine, 125 volts, 240 amperes, 300 revolutions.

L. F. SEYFERT'S SONS,
437-441 N. Third Street, PHILADELPHIA.

FOR SALE.

Four boilers, 5 flue, 64"x28", 3/8" extra flange, Juniata steel, 3/4" heads with Reliance water columns, Rogers shaking grates, steam drums 36"x8", mud drums 20"x6", 5" safety valve, 1 equalizer 15"x35". These boilers are displaced to make room for new plant necessitating increased power. Are in good order and can be had at a bargain. Address LOUISVILLE COTTON MILLS CO., Louisville, Ky.

FOR SALE.

Two hundred and fifty tons of new forties; two hundred and fifty tons new thirties; one 16" cyl. Roger Locomotive, good condition; one 13" cyl. Baldwin Locomotive, good condition; one 15-ton stand. gauge Locomotive, for wood or iron rails; two 25-ton 14" cyl. stand. gauge Locomotive, fine condition. Apply

SABEL BROTHERS,
Jacksonville, Fla.

FOR SALE.

We own a choice lot of

RELAYING

25 lb. and STEEL RAILS

and Splice Bars and Spikes for same. Also a number of Frogs, and Stub and Split

SWITCHES.

If you want to buy either new or re-laying Rails—any weight, or Switches, write us.

ROBINSON & ORR,

410 Wood Street, Pittsburgh, Pa.

SPECIAL LOCOMOTIVE SALE.

We own and offer the following Locomotives at the most attractive prices in the market.

Standard Gauge.

18x24 Cylinders, 10 Wheeler Rogers (A Bargain)
18x22 Cylinders, 10 Wheeler Baldwin
18x22 Cylinders, 10 Wheeler Baldwin (Just rebuilt)
17x24 Cylinders, Passenger Baldwin (A Bargain)
16x24 Cylinders, Passenger Taunton (Rebuilt)
14x22 Cylinders, Passenger, 27 tons
15x24 Cylinders, Passenger (Rebuilt)
10x16 Cylinders, Passenger Porter (Rebuilt)
9x14 Cylinders, Saddle Tank Porter (Rebuilding)

36-inch Gauge.

13x20 Cylinders, C. & N. W. Passenger (Excellent Condition)
10x16 Cylinders, Porter Saddle Tank.
10x14 Cylinders, Porter Dummy.
9x14 Cyl., Porter Saddle Tank, 36", 42", 44" Gauge.
9x14 Cyl., Vulcan Saddle Tank, 42", 44" Gauge.
7x12 Cylinders, Shay Geared (wood or steel rail).
8x7 Cylinders, Dunkirk Geared, 14 tons.
6x12 Cylinders, Petersburg Geared, 12 tons.
6x12 Cylinders, Porter Saddle Tank, 8 Tons.
8x16 Cylinders, Porter Saddle Tank, 10 Tons.
7x12 Cylinders, Porter Saddle Tank, 8 Tons.
6x10 Cylinders, Porter Saddle Tank, 6 Tons.
Standard and Narrow Gauge Passenger and Combination Coaches, Box, Flat, Logging, Dump, Gondolas and Caboose Cars. Prompt deliveries. Specifications and prices furnished on application.

BOWEN & STREET EQUIPMENT CO.
Main Office, Norfolk, Va. Shops, Suffolk, Va.

FOR SALE.

Several Hundred Tons of
1/4 inch

Open-Hearth Tank Plate

63 x 156-inch.

E. KEELER CO., Williamsport, Pa.

FOR SALE.

250 tons 35 lb. relays, with splice bars, good condition.
1 (Dickson Manufacturing Co.) 36-in. gauge, 35-ton locomotive, with tender.
12 15-ton capacity, side dump, 36-in. gauge, hopper bottom ore cars, by Tredegar & Co., Richmond. All the above material subject to inspection at McDowell, Alleghany Co., Va.
ALLEGHANY ORE & IRON CO.
Clifton Forge, Virginia.

FOR SALE.

One Sturtevant hot air blower and piping.
One 150 or 200 horse power tubular boiler.
One lot iron piping of all sizes.
One Dean duplex pump.
Some large shafting. Lot of brick.
One Boss power press.
Lot Pine Fibre. Address,
DR. T. G. CROFT, Aiken, S. C.

FOR SALE.

Immediate delivery at an attractive price.

48-in. Riveted Steel Pipe

1/2 and 3/4 inch in thickness.

E. KEELER CO., Williamsport, Pa.

NEW, LIGHT STEEL RAILS

FOR SALE.

Immediate Shipment.

16, 20, 25, 30 and 35-lb. Steel "T" Rails with complete joints.

CLEARFIELD STEEL & IRON CO.

Mills at Clearfield, Pa.

Offices, German Natl. Bank Bldg., PITTSBURG, PA.

FOR SALE CHEAP.

Six Standard Gauge Locomotives.

In good condition. Weight on drivers 25 tons.

CAINE & PLITT,

824 Real Estate Trust Bldg., PHILADELPHIA, PA.

Long Distance Telephone 3-57-58.

MANUFACTURERS

Light Steel Rails,

12, 16, 20, 25, 30 and 35 lbs. with splices.

Prompt delivery.

Maryland Rail Co.

CUMBERLAND, MD.

Contractors' Material**For Sale or Rent.**

LOCOMOTIVES—One 10x16, 36" gauge with tender.
One 10x12 standard gauge Baldwin dummy type.
Three 16x24 S. G. American type, with tenders.
One 36" gauge 5½x7 Byers geared.
One 12-ton Davenport, 36" new.
One Baldwin 36" gauge in good order.
One 8x16, 42" gauge Bailey saddle tank.

CARS—Both narrow and standard gauge, dumps and flats.

STEAM SHOVELS—several little Giants, Marions, etc., too numerous to mention.

TRACTION ENGINES—Three, from 18 to 25 horse power each.

PUMPS—One Worthington compound duplex steam, 12x8½x10½x10.

HOISTING ENGINES—about 7½x10 d c d with or without boiler, about 8x10 d d s c without boiler, male and female friction hoist, and others.

Stationary engines all sizes, crushers, boilers, etc.

HARPER MACHINERY CO.

Park Row Building, New York.

Yards and Shops, Newark, N. J.

Manufacturers Light Steel Rails

16, 20, 25, 30, 35, 40 lbs. per yard, splice and angle joints and bolts.

Spikes for all section rails.

Shipment from stock at all times.

SCHONTHAL IRON & STEEL CO.

Mills and General Offices,
CUMBERLAND, MD.

RAILS—LOCOMOTIVES.

400 tons 35 and 40-lb.; 2000 tons 56-lb.; 600 tons 60-lb steel relay rails.

Locomotives—Narrow and standard gauge. 30 locomotives on hand.

Southern Iron and Equipment Co.
ATLANTA, GA.

40-Pound Relay Steel Rail.

200 tons for sale cheap.

WALTER A. ZELNICKER SUPPLY CO.

Department M. In St. Louis.

Shall we send you our Daily Rail and Equipment Bulletin?

FOR SALE.

NEW STEEL RAILS.

12, 16, 20, 30, 35 and 40 lbs., with splice bars, bolts and spikes. Immediate shipment from stock.

JOHN J. HAMEL & CO.

House Building. PITTSBURGH, PA.

FOR SALE—RAILS.

For immediate shipment from stock, 8, 12, 16, 20, 30, 40, 70, 75, 80 and 85-lb. New Rails. Also 20, 25, 30, 40, 50, 56 and 60-lb. Relays, for prompt shipment. Cut Rails a Specialty.

RICHARDSON & CO., Inc.

200 Ninth Street, PITTSBURGH, PA.

FOR SALE.

1 9x14 Locomotive, 36" gauge.
9 Chicago Pneumatic Riveting Hammers.
3 Philadelphia Pneumatic Riveting Hammers.
1 125 H.P. return tubular boiler, 125 lbs pressure.
1 Air Compressor, 14-16x18, high pressure.

J. C. Saxton, 18 Broadway, New York City, N.Y.

FOR SALE.

Several Narrow Gauge Engines 10 to 20 tons; also standard from 40 to 60 tons. 1 16x24 Switcher in splendid condition. Stationary Boilers and Engines. 1 Perkins Shingle Machine as good as new. Agent for the Russell Wheel and Foundry Co. Cars. Also the Parker Steam Skidder.

J. H. MACLEARY & CO.

Southolk, Va.

Steel Building,

300 feet x 56 feet.

Good as new, for immediate shipment.

UNION RAIL CO.

902 Farmers Bank Bldg. PITTSBURGH, PA.

For Sale—Locomotives and Rails.

One 20x24 Baldwin Consolidation.
One 19x24 Dickson American type.
One 18x24 Dickson Mogul.
Three 17x22 Dickson Six-wheel Switchers.
One 15x22 McQueen American type. A bargain.
One 12x22 Dickson Four-wheel Saddle Tank.
One 12x16 Baldwin Forney type.
One 9x11 Porter Four-wheel.
All of the above standard gauge.

In 3 ft. Gauge we have:

One 12x16 Mason Forney type.
One 8x16 Porter Four-wheel Saddle Tank.
One 8x12 Shay Geared, built in 1896, (in South Carolina).
One 7x12 Baldwin Four-wheel Saddle Tank.
One 6x10 Porter Four-wheel Saddle Tank.
Also New and Relaying Rails of all weights.

BIRMINGHAM RAIL & LOCOMOTIVE CO., Birmingham, Ala.

N. Y. Elevated R. R. LOCOMOTIVES

Ready for Immediate Delivery.
Excellent Condition.

4' 8½" Gauge, Forney Type, Cylinders 11"x14", 11"x16", 12"x16".

Suitable for Logging Roads, Contractors, Switching, &c.

BENJAMIN WATSON,
(Coffee Exchange Bldg.)
68 to 70 Beaver Street, N. Y. CITY.

Steel Rails, Cars, Locomotives, R. R. Supplies.

FOR SALE.

300 tons 60½-lb. steel relaying rails with angle bars, Alabama and Georgia delivery.

900 tons 70-lb. steel relaying rails with angle bars, Ohio delivery.

500 tons 48-lb. steel relaying rails with angle bars, Ohio delivery.

Second-hand locomotives, coaches, steam shovels, and other railway and contracting material.

THE ISAAC JOSEPH IRON CO.

525-531 Hunt St., Cincinnati, Ohio
922-524 Monadnock Block, Chicago, Ills

LOCOMOTIVES.

50-ton Freight and Switch Engines for prompt delivery.

RAILS AND CARS.

MAY & SPALDING,
ATLANTA, GA.

R. S. ARMSTRONG & BRO.

ATLANTA, GA.

IRON BROKERS,

And dealers in New and Second-hand Machinery. Also carry in stock Hoisting Outfits and Light Section Rail for contractors' use.

NEW STEEL RAILS.

We have a large quantity of steel, A. S. C. E. section, various weights, with or without fastenings, for immediate or future delivery. Also have "seconds" for sale.

O. W. DAVIS & CO., 68 Wall St., New York City.

J. E. FRANKS

SAVANNAH, GA.

RAILS, CARS and LOCOMOTIVES, FROGS, SWITCHES, Etc.

Locomotives and Cars for Sale.

One 14-ton Baldwin, rear tank, standard gauge.
One 8-ton 7x12 Porter 4 Saddle Tank, 42" gauge.
One 17-ton Climax Geared, 36" gauge.
Five Climax logging cars, 36" gauge.
Steam shovels, hoisting engines, etc.

THE EDGAR S. LOW CO.

Empire Building. PITTSBURGH, PA.

Locomotives, Cars, Steam Shovels.

7 Standard Gauge Passenger Cars for sale or lease.
Locomotives, Stand. or Narrow Gauge.

The Cincinnati Equipment Co.

Works, Cullom Sta. CINCINNATI, O.

FOR SALE.

New Steel Tee Rails

60 to 80 lb. A. S. C. E. section.

Delivery guaranteed.

RAILWAYS BUILT and FINANCED.

C. H. RUTTER, Easton, Penna.

FOR SALE.

Four (4) 18"x22" Cylinder Baldwin, ten-wheel Freight Standard Gauge Locomotives, weight about 42 tons; six drivers, 30" diameter; separate eight-wheel tender.

One (1) 14"x22" Cylinder, Baldwin six-wheel Locomotive (four drivers 30" diameter, pony truck in front, with separate eight-wheel tender.

Twenty (20) Flat Cars, 30' long, 20 tons capacity, Diamond Trucks, M. C. B. Automatic Couplers, hand brakes.

Twelve (12) Coaches, 51' over all; carry 54 passengers; good coaches; cheap.

Two (2) Baggage Cars, same length; carry 25 passengers; all equipped with Westinghouse Air Brakes.

NEW YORK EQUIPMENT COMPANY,
18 Broadway (Room 526), New York.

2 Little Giant Steam Shovels, \$2500.00 each, Pittsburg

1 Little Giant Steam Shovel, \$1800.00, Pittsburg

Three 9x14 36" gauge Porter Locomotives, almost new,
\$2500.00 each, Stewart, Pa., P. R. R.

Booth & Flinn, Limited.
Pittsburg, Pa.



GONDOLAS,

Drop or Hopper Bottom.
50,000 lbs. Capacity.

Immediate Delivery.

Special Logging Locomotives.

Baldwin 32-ton Consolidations and 28-ton Forney Types.

FITZ-HUGH, LUTHER CO., CHICAGO, NEW YORK.

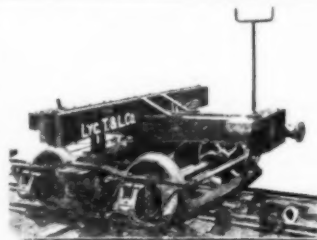
527 North Second St., St. Louis. 903 Rialto Bldg., San Francisco.

Patapsco Machine & Supply Co.

210-212 Patterson St.—Baltimore, Md.

MANUFACTURERS OF AND DEALERS IN

Brass Hardware and Specialties,
Railroad, Steamboat and Contractors' Supplies.
Second-Hand Machinery Bought and Sold.



Logging Cars.

Trucks — Wheels — Brasses.

Write for Prices.

Apex Equipment Co.

7-9 Broadway, New York.

RELAYING 56 and 60-lb. RAILS.

With heavy angle splice bars
An unusually fine lot of relayers. Quick shipment.

HENRY LEVIS & CO.

Philadelphia, Penna.

FOR SALE.

1 Locomotive, 36" gauge, 11x16, 15-ton capacity.
9 Box Cars, 54' long, 60,000 lbs. capacity. 30 Box Cars, 30' long, 40,000 lbs. capacity. 200 tons 56 lb. Steel Relays. 150 tons 60-lb. Steel Relays. 50 tons 53-lb. Steel Relays. Also New Rails, 8 to 40 lbs.

L. WOLF & BRO.,

50-51-53 Mitchell Bldg., CINCINNATI, OHIO.

STEEL RAILS.

New and Relaying Rails, all weights, for prompt shipment. Frogs, Switches and Crossings. Write us for prices.

STRINGFELLOW & WEBSTER,
RICHMOND, VA.

STEEL RAILS.

NEW AND RELAYING AND ALL ACCESSORIES.

Frogs, Switches, Crossings, Etc.

GEORGE H. CAREY,

1 Broadway, NEW YORK.

NEW LIGHT STEEL RAILS.

12 lb. to 40 lb. per yard and Splices.
New Heavy Sections to 80 lb.
Narrow Gauge Railway Equipment.
Cars, Locomotives, Switches, etc.

WONHAM & MACOR,

Columbia Building, NEW YORK.

Alabama Frog & Switch Co.

ANNISTON, ALA.

Manufacturers of

Railroad Crossings, Frogs,
Switches, Switch Stands, Rail Braces, Etc.

ST. LOUIS' LARGEST SCRAP
IRON HOUSE.

Cohen-Schwartz Rail and Steel Co.

Head Office and Plant: Main & North Market Sts.

Branch Office and Yards: Foot of Mound St.

ST. LOUIS, MO.

Correspondence Solicited.

FOR SALE.**Immediate Delivery.****AIR COMPRESSORS.**

Two Rand Straight Line, "Class C," 18"x18"x24",
One Ingersoll-Sergeant, Class "G," Duplex, 20"
x20"x24",
One Norwalk (2 stage) 14"x14"x9"x16",
Two Rand Duplex (3 stage) 18"x14"x8"x4"x4"
x24",
One Rand Duplex Corliss, 20"x20"x36".

BOILERS.

Four Babcock & Wilcox Water Tube, 208 h. p.
each, shaking grates.
Eight Horizontal Return Tubular, 66"x16",
Three Horizontal Return Tubular, 72"x12",
Four Horizontal Return Tubular, 72"x16",
Three Horizontal Return Tubular, 60"x16",
Nine Horizontal Return Tubular, 72"x18".

ENGINE.

One 20"x40" Buckeye, girder frame, band wheel
in half, 12"x31" face.

LOCOMOTIVES.

36" gauge Locomotives.
Four H. K. Porter 9"x14", saddle tank.
Two Vulcan 9"x14", saddle tank, built 1900.

RAILS.

200 tons 30-lb. steel relays.
200 tons 35-lb. steel relays.
500 tons 56-lb. steel relays.

CARS.

Eighty 80,000-lb. Ore Hopper Cars, made by
Allison Mfg. Co.

PUMP.

1 Worthington Compound Duplex Condensing
Pump, 25"-43"x17"x36", 20" suction and 18"
discharge. Capacity, 3,000,000 gallons.
All of the above in A 1 order and ready for
immediate delivery.

We buy and sell Air Compressors, Engines,
Locomotives, Rails, Cars, Bridges, Boilers, Hoist-
ing Engines and Pumps, etc. Complete plants
purchased.

BOILER STACK.

1000 feet of 34" Boiler Stack, 5-16" material. This
stack is first-class in every respect and will be
sold at a bargain.

CYLINDER BOILERS.

8 Boilers, 40' long x 34" diam., good for 100 lbs.
steam pressure, without fixtures or fittings. For
quick sale will be sold cheap.

A. V. KAISER & CO.

222 South Third St., PHILADELPHIA, PA.

FOR SALE.

1 right hand Prescott band mill, 8 in. x 8 ft. 2
dynamoes, 300 light capacity. 8 horizontal tubular
boilers, with dome, size 5 ft. x 16 ft., 44 4-in. tubes.
1 fan, 9 ft., engine attached. 1 fan, 7 ft. belted.
The above items are all in good order, and will
be sold cheap for cash. For further particulars
inquire of

YELLOW POPLAR LUMBER COMPANY,
COAL GROVE, OHIO.

FOR SALE.

Two Hot Blast apparatus made by
American Blower Co., 48 inch wheel.
4000 feet piping; were new eight
months ago.

Wm. E. Uptegrove & Bro.

No. 463 East 10th Street, New York City.

FOR SALE.

1 15x22 Standard Gauge Locomotive with tender,
wheel centers 44".
1 12x16 Class C Straight Line Rand Air Com-
pressor.

Also have quite a number of New and Second-
hand Hoisting Engines, Machine Tools, Lathes,
Planers, etc., in stock.

CHAS. T. LEHMAN, Birmingham, Ala.

FOR SALE.

New I Beams and Channels cut to lengths for
prompt delivery.

We are always in the market for Cylinder Boilers
Smoke Stacks, Flues and Second-Hand Pipe.
Also Scrap Iron and Steel in any quantity.

HENRY A. HITNER'S SONS,

Aramingo Ave. and Huntingdon St., Philadelphia.

MINE ENGINES.

Made by Dickson, 18"x18" cylinders,
two loose drums on one shaft, link motion
9 ft. gear wheel, powerful construction.

WICKES BROS.

95 Liberty St., New York City.

BOILERS!

Engines, Machinery in great variety at
LOW PRICES.

Correspondence solicited by
FIDELITY MACHINE AND METAL COMPANY,
1408-22 Washington Ave., Phila.

FOR SALE.

1 18" Turret Lathe.
1 18" Engine Lathe.
1 14" Engine Lathe.
1 12x14 Upright Engine.
1 12x14 Atlas Engine.
3 Gasoline Launches.
1 6 H. P. Marine Engine.

Let us have your requirements. We can fill them.
PATAPSCO MACHINE & SUPPLY CO.
Baltimore, Md.

FOR SALE.**New Light Steel Rails,****ALL WEIGHTS,****WITH****Track Fastenings.****THE STEEL RAIL SUPPLY CO.****100 Broadway,****NEW YORK, N. Y.****FOR SALE.****Danville & Western Railway Co., Danville, Va.,**

has for sale three narrow gauge locomotives,
one Passenger type and two Moguls.

A lot of coaches, flat cars, and box cars,
also about 30 miles of 35 lb. relaying steel.

Both the equipment and the rail is in good
condition, ready for immediate service and
delivery.

For prices and specifications, write to

THEO. PARKER, Superintendent,
DANVILLE, VA.

DAVENPORT LOCOMOTIVES

Contractors' sizes in stock for immediate
shipment.

RANSOME CONCRETE MIXERS

Without power or with boiler and engine
connected.

Boilers, Engines, Earth and Rock Moving
Machinery.

**Correspondence Solicited on Con-
veying Plants.**

1-1/2 yd. Model AA Marion Shovel in fine
condition, Pennsylvania delivery.

N. C. HEISLER & CO.

2304-6-8 Washington Ave., Philadelphia, Pa.

RAILS.

We own 1000 Tons 35 lb. First Class Re-
laying Steel Rails with Fastenings, in East
Texas, on 3 large Railroads. 8, 12, 16 and 20
lb. New Steel in our warehouse. 25 to 40 lb.
New Steel in stock at Mill. New and Relay
any weights.

Locomotives, Equipment and Supplies of
all kinds.

WESTERN SUPPLY & MFG. CO.

East St. Louis, Ill.

NEW RAILS.

12,500 tons New Steel T Rails,
60, 70, or 80 lbs. per yard. July
and August delivery.

Railroad Construction.

Steam and Electric Roads
Built and Financed.

JUSTICE COX, JR., & CO., LIMITED,

552-554 Bullitt Bldg., Philadelphia.

156-158 Broadway, New York City.

FOR SALE.

STANDARD GAUGE PRIVATE HORSE OR STOCK
CAR, adjustable stalls for carrying sixteen heads,
complete in every detail, in first-class condition.
BALDWIN STANDARD GAUGE DUMMY LOCOMO-
TIVE, 9x12. Has been thoroughly overhauled and
put in first-class condition.

Both of the above will be sold at a low price.

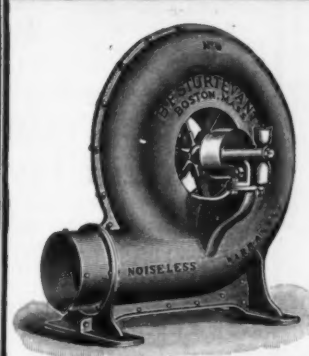
POULTERER & CO.

410 Bullitt Building. PHILADELPHIA, PA.

If you want to reach the possible land
buyers and investors in the North and
West who are thinking of locating in
the South, advertise in the SOUTHERN
FARM MAGAZINE. Published by the Man-
ufacturers' Record Publishing Co., Bal-
timore, Md.

**STURTEVANT
BLOWERS**

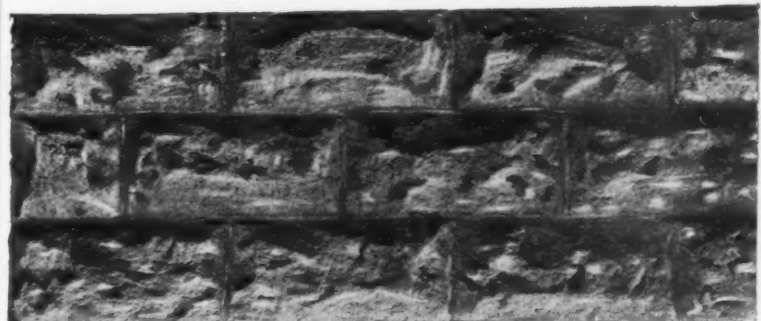
*of every conceivable
form for every con-
ceivable purpose.
Built for endurance.*



—ALSO—
Exhausters
Steam Fans
Electric Fans
Engines
Electric Motors
Generating Sets
Forges
Exhaust Heads
Steam Traps
Heating
Ventilating and
Drying Apparatus
Mechanical Draft

134

B. F. STURTEVANT & CO. BOSTON.
NEW YORK - PHILADELPHIA - CHICAGO - LONDON

**RED ROCK FACE**

**WE SAVE 1/2 THE CEMENT and
1/3 THE LABOR in**

Making Hollow Cement Stone

Because we use CONCRETE, instead of a mixture of
fine sand and cement, and because WE MIX IT WET
and pour it instead of mixing dry and tamping it.

Our stone is DENSE, and NON-POROUS.

The stone made of dry sand and cement will take 40
per cent. of its own bulk of water.

With our process walls cost less than 1/2 what brick
do and less than wood, and the walls are better.

With the dry process, competition with either brick or
wood is not possible.

Our Statements are Based on Practical Experience in Our Own Stone
Yard. WE MAKE AND SELL STONE, AND MAKE MONEY—YOU CAN

Booklet No. 5 Tells More

K. DYKEMA & SON

21 Fountain Street

Grand Rapids, Mich.

BALLAST CARS

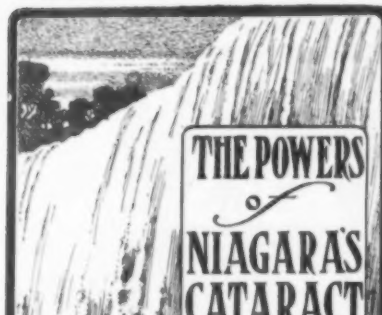
250 Center Dump.
100 Side Dump.
200 50,000 Capacity Flat,
Practically New.

IMMEDIATE DELIVERY.

Inspection Chicago.

**A full line of
Equipment.**

F. M. HICKS, Chicago.



THE POWERS
NIAGARA'S
CATARACT

have been harnessed to make the world's greatest abrasive.

CARBORUNDUM

was introduced to the world twelve years ago from a furnace having a capacity of a quarter of a pound a day. Its great furnaces, with additions now being completed, use 5,000 electrical horse power and have a capacity of 10,000,000 pounds a year. Carborundum is made into grinding wheels and sharpening stones of all kinds and for all purposes.

The book tells about it

The Carborundum Company
Niagara Falls, N. Y.

For
HYDRAULIC
TOOLS

See Catalogue.
WATSON-STILLIAN CO.
201-11 E. 43d St.
NEW YORK.

JACKS
PUMPS
PRESSES
RIVETERS
VALVES

PATTERNS
WOOD AND METAL OF ALL KINDS. PATTERN LETTERS.

CINCINNATI PATTERN WORKS,
FRONT AND LAWRENCE STS., CINCINNATI, O.



A THOROUGH TEST OF
material is made in the vitrified process by which the

"ABRASIVE"

EMERY WHEEL

is manufactured. Nothing but the very best material will stand the intense heat to which it is subjected. That's why we're able to guarantee them to cut as fast as any emery wheel made.

ABRASIVE MATERIAL CO.

PHILADA., PA.

THE MONARCH Emery and Corundum Wheel Company,

Manufacturers of

EMERY and CORUNDUM WHEELS.

The Greatest Saw Gummer and Knife Grinder Wheel in the World.

Factory and Main Office: 508-514 Liberty St., Camden, N. J., U. S. A.

Emery Wheels

Will Run Wet or Dry.

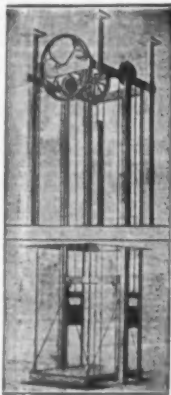
CORUNDUM WHEELS.

Polishers and Machinists' Supplies, Rub Stones, Emery Wheel Machinery, and Diamond Tools.

Vitrified Wheel Co.,

Westfield, Mass.

ELEVATORS



**Electric,
Hydraulic,
Belt
and Hand**

For Passenger or Freight Service.

Write for Circular 16.

**AMERICAN
MACHINE CO.,**
Louisville, Ky.

BATES'
Hand Elevators.

30,000 in use.
60 years in the Elevator business.

JAMES BATES' SONS,
BALTIMORE, MD.

**My Letters Make
Good Castings.**

Foundrymen and Patternmakers everywhere use them. Made in many sizes and styles and of lead composition or brass. Wholesale or retail and at low prices. Samples free.

A. W. BRIM, Seneca Falls, N. Y.

Patterns in Wood and Metal.

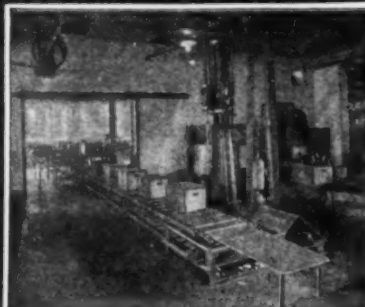
**THE
Richmond Pattern Works**

305, 307, 309, 311, 313 North 18th St.

RICHMOND, VA., U. S. A.

Ornamental and Machinery Patterns of all kinds; Marine Patterns a Specialty.

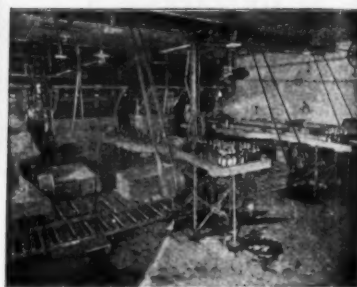
Practical Construction Guaranteed.
IRON AND BRASS CASTINGS
OF EVERY DESCRIPTION.



Box Handling Conveyor in Brewery.
Conveyors for handling material either in bulk or packages.
Send for Catalogue No. 56.

THE JEFFREY MFG. COMPANY,
COLUMBUS, OHIO, U. S. A.
NEW YORK. CHICAGO. DENVER.

JEFFREY
Elevators, Conveyors,
FOR
MILLS, FACTORIES, POWER
HOUSES, MINES, Etc.



Conveyor handling bottles in Brewery.
Capacity of system, 90,000 bottles per day.

THE PARK MANUFACTURING CO.
CHARLOTTE, N.C.
HYDRAULIC, ELECTRIC, BELT POWER, AND HAND. ELEVATORS.
VARIABLE STROKE BELT POWER BOILER FEED
PUMPS AND HEATERS.
CORRESPONDENCE SOLICITED

THE HAVEN ELEVATOR CO.

High Service Elevators, Passenger, Freight, Hydraulic Electric, Belt and Hand Power. Write for Estimates

CINCINNATI, O.

**New Jersey Foundry
& Machine Company**

9-15 Murray St., New York
Telephone, 924-025 Court'dt

Overhead Trackage
Systems,
Elevators,
Etc., Etc.



Will travel
in 30-inch
Radius

Hoisting Tubs and Buckets
Coburn Trolley Tracks
Contractors' Supplies
Grey Iron and Malleable Iron Castings

Light Forgings and Conveying Machinery
Fire Door and Shutter Hardware
Stable, Pier and Parlor Door Hangers

Hand-Made Chains
Diamond Expansion Bolts

Chain Hoist

EFFICIENCY

Fully 20 per cent. higher

than the best of other makes, and that's only one of the distinguishing features of

**SPEIDEL'S
ECONOMIC
SAFETY HOIST**

It's the most original hoist of this character. Others are simply imitations with additional friction making wheels added.

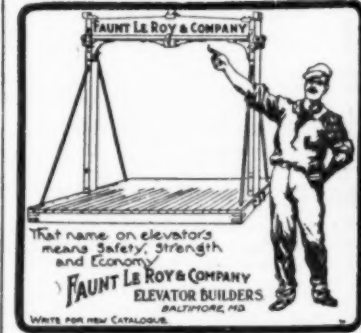
BOOKLET FREE.

J. G. SPEIDEL,
READING, PA.

Freight Elevators

FOR
**Hand, Belt and
Electric Power.**

PARKHURST BROS. & CO., Indianapolis, Ind.



**FREIGHT
ELEVATORS,**

Hand and Belt Power.

POWER HOODSHEAD SCREWS.

**THE J. B. WESTBROOKS FOUNDRY
AND MACHINE CO.**

DANVILLE, VIRGINIA.

General Founders and Machinists.

POWER TRANSMISSION APPLIANCES

TRAVELING AND JIB

CRANES

THE CASE MFG. COMPANY, COLUMBUS, OHIO.

Our Portable Hoist Is a Great Labor Saver

designed especially for piling cases, bales and heavy packages, or elevating them through a door or opening. A man can lift 800 pounds with it. Easily handled, and while strong and substantial, can be rolled around at will. Many mills are using them.

(Copy)

Troy, N. Y., Feb. 14, 1903.
Mr. J. E. Larrabee, Amsterdam, N. Y.
Dear Sir—We have had one of your Portable Hoists in use in our warehouse for the past two years. It has saved us a great deal of time and labor, and has paid for itself many times. In fact it would be almost impossible for us to get along without it.

Yours, etc.,
TROY KNITTING CO.



KNUCKLE JOINT HOIST. WITHOUT KNUCKLE JOINT.

JOHN E. LARRABEE, Amsterdam, N. Y.

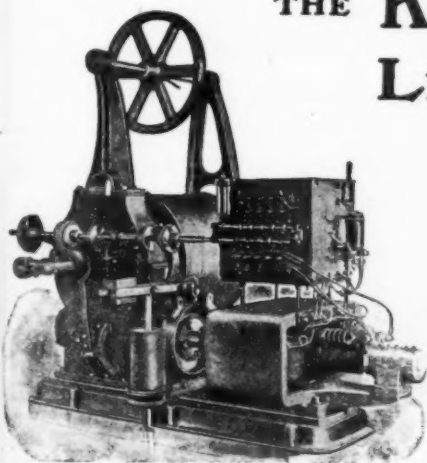
THE MORSE ELEVATOR,

with proper care, will last a generation.

The Pennsylvania Steel Company, Steelton, Pa., bought a Morse Elevator in 1884. They write us that they have taken this elevator down and are going to re-erect it in another building.

Morse, Williams & Company,
PHILADELPHIA.

THE Kinkade & Liggett co.



Passenger and Freight

ELEVATORS
COLUMBUS, OHIO.

ELEVATORS

Passenger and Freight

Hydraulic,
Electric,
Steam,
Belt Power,
Hand Power.

The Louisville Elevator Co., Louisville, Ky.

LINK-BELT ELEVATORS. CONVEYORS.

FOR COAL AND ASH HANDLING.



Illustration shows 45-foot center Ashes Elevator, Ley steel bushed chain, installed for Crucible Steel Co., Jersey City N. J. Ashes are brought to the elevator by means of Industrial Track System, furnished by us.

We also installed for this Company machinery for conveying, crushing and storing coal in boiler house.

"Price-cutting means quality-cutting. 'As good as' is always found in the high pan of the scales."

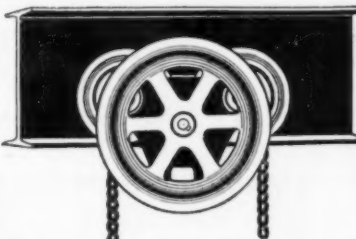
LINK-BELT ENGINEERING CO.

Nicetown, Philadelphia.

New York, 49 Dey St. Pittsburgh, Park Bldg. Savannah, Sorrel Bldg. Chicago, Link-Belt Machinery Co.



ROBINS CONVEYING BELT CO., 19-22 Park Row, N. Y. City.



FOUNDRIES
FACTORIES
WAREHOUSES

Gain Economical Conveying Equipment

WITH OUR

I Beam Trolleys.

Bulletin No. 12 W.

Pawling & Harnischfeger, CRANE and HOIST BUILDERS,
248 Oregon Street, MILWAUKEE, WIS.



Chain Belting Sprockets and CONVEYING MACHINERY.

THE C. O. BARTLETT & SNOW CO. CLEVELAND, OHIO.

MARYLAND FOUNDRY & MACHINE CO. BALTIMORE, MD.

Manufacturers of Passenger and Freight

ELEVATORS.

THE J. W. REEDY ELEVATOR MFG. CO.

PASSENGER AND FREIGHT

ELEVATORS

OVER 15,000 IN OPERATION THROUGHOUT THE WORLD

83-85-87-89-91 ILLINOIS STREET,
120-122-124-126 INDIANA STREET,
CHICAGO.

ELECTRIC
STEAM
HYDRAULIC
BELT
HAND

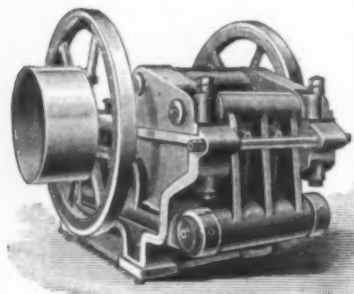
Davidson
Tubemills

Kominuter
New Coarse Grinder

Sixty Million
Barrels of Cement
Ground Annually by
SMIDTH MILLS.



BUCHANAN'S ROCK CRUSHER



All Tensile Strains on Steel.
Strongest Crusher Made.
Widest Range of Adjustment.
Wearing Parts can be inverted.
Sizes from 7"x10" to 24"x36".
Capacities from 50 to 1000 tons
per day.

Geo. V. Cresson Co.
Philadelphia and New York.

Buchanan's Crushing Rolls and Magnetic Separators.
POWER TRANSMITTING MACHINERY.

G. BUCHANAN,
Consulting Engineer.

Department of Crushing and
Concentrating Machinery.

141 Liberty Street,
NEW YORK.

Hadfield's Manganese Steel, Strong, Hard and Tough

LIPS AND PATENT TEETH for

Steam Shovels
and Dredges.



**Hard
Wearing
Parts—**

TAYLOR IRON & STEEL CO.

Sole Manufacturers,
High Bridge, N. J.

Send for Catalogue.

Austin Gyratory Crushers



Technically and mechanically without a fault.
Least liable to get out of repair
and most economical in consumption of power.
Made in nine sizes.
In general use everywhere.
Write for the handsomest Crusher catalogue ever issued.
Also Dump Cars and Contractors' Machinery.

Austin Mfg. Co.
CHICAGO

BRANCH OFFICES: NEW YORK PITTSBURG ATLANTA ST. LOUIS



AIR TOOLS

are no longer regarded as an experiment. The fact of their economy is thoroughly established. It is now only necessary to be sure you get the best. We are so sure that

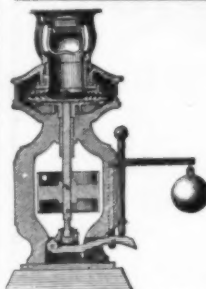
"Imperial" Pneumatic Tools

are the best that we will send them on approval and leave the matter to your judgment.

Rand Drill Company

128 Broadway, New York.

Branches Throughout the World.



Sectional view No. 2 Mill.

Boøardus Universal Eccentric Mill.

This mill has already attained the reputation of being the best mill in the world for general grinding. Will grind five times as much as any mill of same size.
ECONOMICAL, DURABLE, SIMPLE. Any boy can attend same.

Catalogue and price list sent on application.

MANUFACTURED SOLELY BY

J. S. & G. F. SIMPSON,

28 Rodney Street, Brooklyn, N. Y.



New Emery Mill for Phosphate, Rock and Similar Materials.
Send for Circular. Startevant Mill Co., 116 Clayton Street, Boston, Mass.

GRINDS

5

Tons
Per
Hour.

No Screens

CONTINENTAL CAR and EQUIPMENT CO.



17 Battery Place,
NEW YORK CITY.

Logging Cars,
Industrial and
Railway Push Cars.

Before buying small cars, send for our catalogue.

BUILDERS OF Freight, Cane, Dump and Other Cars.

Complete Industrial Railways

EQUIPPED, PLANNED AND BUILT FOR

Factories, Plantations, Quarries, Mines, Contractors, Etc.

CARS OF EVERY DESCRIPTION
FOR EVERY PURPOSE.



CAR FOR FACTORIES,
FREIGHT, ETC.

Rails, Switches, Turntables, Etc., always in Stock.

Manufactured by **ARTHUR KOPPEL,** Manufacturer of Narrow Gauge Railway Materials.

Write for Catalogue No. 25.

(Dept. K.)

66-68 Broad Street, NEW YORK.

The Mecklenburg Iron Works

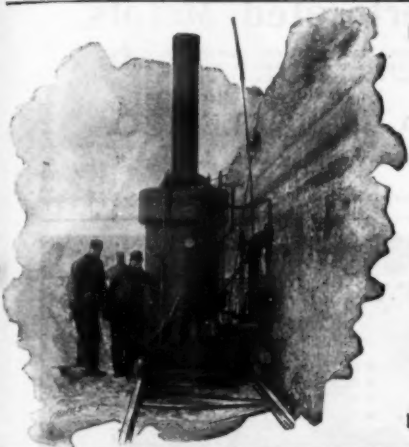
will be glad to answer all correspondence leading to business from parties who need or expect to need machinery for handling Gold, Iron or Cotton, as they have been

M. I. W.

manufacturing such machinery for thirty years, and are situated so as to give entire satisfaction.

Their address is

CHARLOTTE, N. C.



THE EXCAVATION OF ROCK

in the quarry or on contract work, where straight wall cuts are desired, is most rapidly and economically accomplished by the use of

SULLIVAN STONE CHANNELERS.

5 Styles. Send for Catalogue.

Sullivan Machinery Co.,

135 Adams Street,
CHICAGO, ILL.



PEACOCK'S IRON WORKS, SELMA, ALA.

Manufacturers of PLAIN AND AUTOMATIC SELF-OILING

TRAM CAR WHEELS, AXLES, CAR IRONS and CARS

OF ALL SIZES AND KINDS.

COAL AND ORE MINING CARS OF EVERY KIND.

WE PULVERIZE

AND SEPARATE BY AIR.

THE ONLY MILLS IN THE WORLD

GUARANTEED DUSTLESS.

RAYMOND BROS. IMPACT PULVERIZER CO.

143 LAFLIN STREET, CHICAGO.

"New South" Brick Machinery.



Specially designed for working Southern clays. Three sizes with capacities from 6 to 60,000 per day. Hundreds in daily use. 12 years' experience.

J. C. STEELE & SONS,

Statesville, N. C.

OHIO BRICK and TILE MACHINES

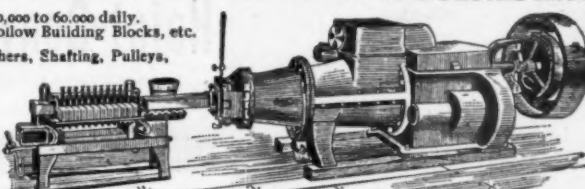
Unequalled for BUILDING, PAVING and FIRE BRICK

Six sizes. Capacity 50,000 to 60,000 daily.
Drain Tile, Hollow Building Blocks, etc.
Pug Mills, Clay Crushers, Shafting, Pulleys,
Belted, Castings.

Send for Catalogue.

E. M. FREESE & CO.

Gallion, Ohio, U.S.A.



H. C. LARRABEE.

JNO. C. MURPHY.

CAROLINE IRON WORKS,

Pyrites Burners Lump or Fine. Eggs, Nitre Pots Various Sizes.
Acid Egg a Specialty.

Write for Prices.

Cor. Caroline and Lancaster Sts., Baltimore, Md.

AIR COMPRESSORS

ALL STYLES—ALL SIZES

ROCK DRILLS

SIMPLEST AND MOST ECONOMICAL

McKIERNAN DRILL CO.

170 BROADWAY, NEW YORK.



THE THEW AUTOMATIC SHOVEL COMPANY,

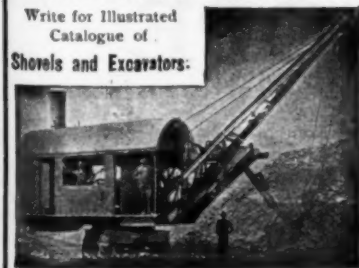
LORAIN, OHIO.

SHOOK & FLETCHER,

Gen'l Southern Agents, BIRMINGHAM, ALA.

STEAM SHOVELS FOR DOCKS
AND RAILWAY TERMINALS.

Only one operator required.
Shovel works in complete circle.
Dipper moves horizontally.
Can be used as locomotive crane.



ROAD BUILDING MACHINERY

and supplies of every description

ACME ROAD MACH'Y CO., FRANKFORT, N. Y., U. S. A.

AIR COMPRESSORS.

FOR ALL PURPOSES

AMERICAN AIR COMPRESSOR WORKS,

26 CORTLANDT ST., NEW YORK.

McLANAHAN-STONE
MACHINE CO.

Engineers and
Manufacturers,

Gaysport Foundry,
Hollidaysburg, Pa.

ORE JIGS,
IMPROVED WASHERS

For Phosphate, Iron,
Manganese and
other Ores.

Elevator for Coarse
Material.

Revolving Screens, Elevators
and Conveyors.

THE FERNHOLTZ BRICK MACHINERY CO.

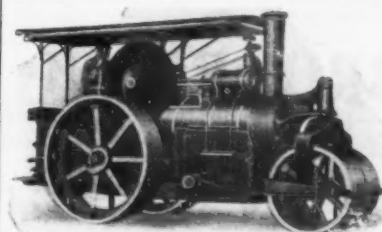
MANUFACTURERS OF

Dry Press Brick Machinery.

Dealers in Brick Yard Supplies.

Boyle Ave. & Old Manchester Road, St. Louis, Mo.

STEAM ROAD ROLLERS.



Kelly-Springfield Road Roller Co.
SPRINGFIELD, OHIO.

THE GRIFFIN MILL

IS NOW USED BY OVER 50 OF THE LARGEST

Portland Cement Manufacturers
in the world.

For the highest references and illustrated catalogue giving full description, address

BRADLEY PULVERIZER COMPANY,

92 State St., Boston, Mass.

ART METAL WORK
In Wire, Brass and Wrought Iron.
Bank and Office Railings
ELEVATOR ENCLOSURES

Wire Cloth, Coal and Ore Screens, Barbed and Plain Wire, Wire Nails and Staples.

Metal Work for Interior and Exterior Decorations
Write for Catalogue. A SPECIALTY,
N. E. Cor. Fourth & Elm Sts., St. Louis, Mo.

STRUCTURAL IRON WORK
For Immediate Delivery.

EYE BEAMS, from 3 in. to 20 in.
CHANNELS, from 1 1/4 in. to 15 in.
ANGLES, 1 in. to 6 in.
FLATS & BARS up to 20 in. wide.
ROOF TRUSSES, GIRDERS, COLUMNS,
and BRIDGES designed and built.
Bridge Railings a Specialty.

BELMONT IRON WORKS
PHILADELPHIA, PA.

STOP WEAR ON YOUR GEARS
BY USING

IRONSIDES GEAR SHIELD

IRONSIDES REGISTERED TRADE MARK. Rope and Gear
Manila Ropes, Paints Lubricants

Get Catalogue I

THE IRONSIDES COMPANY
COLUMBUS, OHIO, U. S. A.

WE MANUFACTURE
Crushing & Grinding Machinery
OF EVERY KIND.

WALKER & ELLIOTT, Wilmington, Del.

PERFORATED METAL
IN SHEET
TIN, ZINC, COPPER, BRASS AND STEEL

EDWIN B. STIMPSON & SON
31 SPRUCE STREET
NEW YORK

Copper Works.

McMILLAN BROS.
Fayetteville, N. C.
Savannah, Ga.
Jacksonville, Fla.
McMILLAN BROS. COMPANY,
Mobile, Ala. Mfg's of

**Turpentine Stills,
And General Metal Workers.**

PERFORATED METAL
FOR RICE MILLS. SUGAR WORKS.
PHOSPHATE MINES.
THE ROBT. AITCHISON PERFORATED METAL CO.
303 305 DEARBORN ST. CHICAGO ILL.

CONVEYOR LINING

Perforated Metals,
for all kinds of Screens—Brass, Iron, Steel, Tin, Copper, Zinc—perforated as required. Perforated Brass and Tin always in stock.
PROMPT SHIPMENTS GUARANTEED.

A. J. BECKLEY CO.
Works—GARWOOD, N. J.

Get Our Prices.

HENDRICK MFG. CO.
CARBONDALE, PA.

PERFORATED SHEET METALS
FOR SCREENING
COAL, COKE, ORE AND ROCK.
ALSO FOR
COTTON SEED OIL MILLS
AND
PHOSPHATE MINES.

Wire and Springs
OF EVERY DESCRIPTION.

CARY SPRING WORKS,
240 & 242 W. 29th St. NEW YORK, N.Y.

BRICK and CLAY-WORKING Machinery,
Hand-or Power. We can supply anything needed in this line.
GEORGE CARNELL, 1819-1821 Germantown Ave. PHILADELPHIA, PA.
SEND FOR CATALOGUE.



Cable Hoist-Conveyor at St. Paul, Minn.

Cable Hoist-Conveyors,
Laurent-Cherry and Hall Patents,
MANUFACTURED BY
THE TRENTON IRON CO.
Trenton, N. J.

Engineers and Contractors and sole licensees in North America for the Bleichert System of Wire Rope tramways. Also, Wire Rope Equipments for Surface and Underground Haulage, Etc.

Illustrated book upon application.

NEW YORK OFFICE—Cooper, Hewitt & Co., 17 Burling Slip.
CHICAGO OFFICE—1114 Monadnock Building.
PHILADELPHIA OFFICE—614 Betz Building.

Wire Rope. Insulated Wires.

Send for Handsomely Illustrated Catalogs.

Hazard Mfg. Co.,
Wilkesbarre, Pa.

NEW YORK: 50 Dey Street. CHICAGO: H. Channon Co. 24 Market St.

BRODERICK & WIRE

Ordinary Steel Rope after 4 1/2 years' wear



showing broken wires.

Send for Catalogue.

805 to 809 N. Main St.,



BASCOM ROPE CO. ROPE

Patent Steel Rope after 6 years' wear



doing double the work.

Send for Catalogue.

ST. LOUIS, MO., U. S. A.

RUBEROID

TRADE MARK REGISTERED

"The Name of Roofing Quality."



**A SUPERIOR
ROOFING
FOR ALL
BUILDINGS.**

**WATER-PROOF.
ACID-PROOF.
FIRE-RESISTING.**

**STANDARD
FOR
TWELVE
YEARS.**

MANUFACTURED EXCLUSIVELY BY

THE STANDARD PAINT COMPANY,

100 William Street, NEW YORK.

CHICAGO OFFICE, 188-190 Madison St.

Easton Foundry & Machine Co.

Main Office and Works, Easton, Pa.
New York Office, 36 E. 22nd St.

BEAMS, CHANNELS and ANGLES.

IMMEDIATE DELIVERY.

CUT TO LENGTH. WRITE FOR QUOTATIONS.

Beams	Channels	Angles-Even Legs (Continued)
6-in. x 12 1/2 lbs. 12 1/2	6-in. x 8 lbs. 8	4-in. x 4-in. x 1/2-in. 9 1/2
7-in. x 15 lbs. 15	7-in. x 9 1/2 lbs. 9 1/2	6-in. x 6-in. x 3/8-in. 11 1/2
8-in. x 18 lbs. 18	8-in. x 11 1/2 lbs. 11 1/2	6-in. x 6-in. x 1/2-in. 13 1/2
9-in. x 22 1/2 lbs. 22 1/2	10-in. x 15 lbs. 15	
10-in. x 25 lbs. 25	12-in. x 20 1/2 lbs. 20 1/2	Angles-Uneven Legs
10-in. x 25 lbs. 25	15-in. x 30 lbs. 30	3-in. x 2 1/2-in. x 5/16-in. 8 1/2
10-in. x 30 lbs. 30		4-in. x 3-in. x 5/16-in. 10 1/2
12-in. x 31 1/2 lbs. 31 1/2	Angles-Even Legs	4-in. x 3-in. x 1/2-in. 12 1/2
12-in. x 35 lbs. 35	2-in. x 2-in. x 1/4-in. 4	5-in. x 3 1/2-in. x 1/2-in. 14 1/2
12-in. x 40 lbs. 40	2 1/2-in. x 2 1/2-in. x 1/2-in. 5 1/2	5-in. x 3 1/2-in. x 3/4-in. 16 1/2
15-in. x 42 lbs. 42	3-in. x 3-in. x 1/4-in. 5 1/2	6-in. x 3 1/2-in. x 1/2-in. 18 1/2
15-in. x 50 lbs. 50	3-in. x 3-in. x 3/8-in. 6 1/2	6-in. x 3 1/2-in. x 3/4-in. 20 1/2
18-in. x 55 lbs. 55	3 1/2-in. x 3 1/2-in. x 1/2-in. 7 1/2	6-in. x 4-in. x 1/2-in. 22 1/2
20-in. x 65 lbs. 65	4-in. x 4-in. x 5/16-in. 8 1/2	
24-in. x 80 lbs. 80		

All angles, channels and beams up to and including 15 in. x 50-lb. are carried in 60-ft. and 65-ft. bars; 18-in. 55-lb. beams in 30-ft., 33-ft. and 36-ft. bars; 20-in. 65-lb. beams in 35-ft., 38-ft. and 40-ft. bars; 24-in. 80-lb. beams in 40-ft., 45-ft. and 48-ft. bars.

CASTINGS OF EVERY DESCRIPTION AND UP TO 10 TONS

BRIDGES, BUILDINGS, ROOFS AND OTHER Structural Steel

THE NEW JERSEY WIRE CLOTH CO.

For information about
WIRE LATHING,
With or without
Stiffening Ribs,
**Roebbing's System
of Fire-Proofing,**
ADDRESS
The Roebbing Construction Co.
121 Liberty St., NEW YORK.

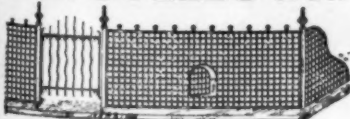
WIRE CLOTH
FOR ALL PURPOSES.

**POULTRY NETTING,
WOVEN WIRE FENCING.**

ROEBBING'S WIRE is used in all of the products of this Company.

TRENTON, N. J.

J. E. BOLLES Iron and Wire Works.



Bank Railings, Elevator Enclosures and Cars, Grills,
Electro Bronze Work, Fire Escapes, Iron Shutters,
Stable Fittings, Window Guards, etc.

Send for Catalogue No. 20 M.
Mention line of business. **Detroit, Mich.**

PAROID ROOFING

IT LASTS.

F. W. Bird & Son.

Chicago. East Walpole Mass. New York.

CARS—WHEELS—AXLES

CARS—Coal Mining—Ore Cars—Contractors' Dump Cars—Lumber Trucks, etc.
WHEELS—(8" to 24" diameter) SELF-OILING Capped—Side Pockets—Plain Spoked—Plate.
AXLES—Machinery Steel—Square or Round—Any gauge.

NOTE: Our wheels will outlast any you have ever used. We use charcoal iron mixed on a scientific chemical basis. Our methods and wheels are ahead of the times. A sample will convince you. Wheels have deep chill and tough hub for longest wear. We do not THINK, we KNOW we can please you.

PRICES—BLUE PRINTS—CUTS—ESTIMATE BLANKS
ON APPLICATION.

**SANFORD-DAY IRON WORKS,
KNOXVILLE, TENN.**

Mining Equipment, Drums, Sheaves, Rods, Pulleys, Cast Frogs and Turn-Outs, Grate Bars, Grates, etc.

A. C. FAIRCHILD, Pres. GEO. H. BLAKELEY, Chf. Engr. J. B. COOKE, Secy. & Treas.

Passaic Steel Company

Manufacturers, Contractors and Engineers for all kinds of

**Structural Steel Work for
Bridges and Buildings**

Roofs, Train Sheds, Power Plants, Manufacturing Plants, etc.
Standard Railway Turntables. Plans and estimates furnished.

Manufacturers of Open Hearth Structural Steel Shapes, Steel Beams, Channels, Angles,
Tees, Z Bars, Plates and Bars.

MAIN OFFICE AND WORKS,
PATERSON, N. J.

NEW YORK OFFICE,
5 NASSAU STREET.

CHESAPEAKE IRON WORKS,

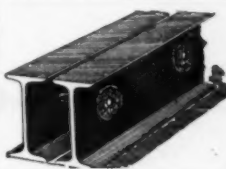
Manufacturers of

Ornamental Iron Work.

332 to 342 North Street,

Baltimore, Md.

**BEAMS,
CHANNELS,
ANGLES,
and
CAST IRON
COLUMNS.**



Headquarters for **BEAMS, GIRDERS, COLUMNS, SILLS,
WINDOW GUARDS, OFFICE RAILING,
IRON AND WIRE FENCES,**
BUILDERS' IRON WORK
AND ALL KINDS OF
SEND FOR CATALOGUE. PROMPT SERVICE. LOW PRICES.
EUREKA SUPPLY CO., CHATTANOOGA, TENN., 8th and Pine Streets.

WIRE RAILING

AND
**ORNAMENTAL WIRE WORKS,
DUFUR & CO.**

311 N. HOWARD ST. BALTIMORE.
Wire Railing for Cemeteries, Lawns, Gardens,
Offices and Balconies; Window Guards, Tree
Guards, Wire Cloth, Sieves, Fenders, Cages, Sand
and Coal Screens, Iron Bedsteads, Chairs, etc.

The Fred. J. Meyers Mfg. Co.
HAMILTON, O.

Manufacturer of Office and Bank Railings, Win-
dow Guards of every description, Elevator Cabs
and Enclosures, Stable Fittings and Crestings.
Ticket and Conductors' Patches, Wire Cloth for
Coal and Ore Mines.
Send for Catalogue.

**STEEL
PLATE
CONSTRUCTION.**

The Girard
Boiler & Mfg. Co.
GIRARD, OHIO.
Blast Furnaces, Stacks, Tanks, Riveted Pipe,
Stand Pipes, Galvanizing Kettles, Ladles, Gir-
ders, Structural Work, etc. Write us.

Burrowes
Rustless SCREENS

Keep Out FLIES and MOSQUITOES
Made only to order. Guaranteed to fit. Best
in the World. Reasonable in price. Esti-
mates furnished. We pay freight.

The E. T. Burrowes Co.
Factories at Portland, Maine
Baltimore Office, 315 Equitable Bldg.
Burch & Hughes, Sales Agents

**BUFFALO
WIRE
WORKS
CO**

FORMERLY
SCHEELER'S SONS
WIRE CLOTH & WIRE GOODS
BUFFALO, N. Y.



MAGNITE

COLD-WATER PAINT

For internal and external use. Gives a handsome, lasting finish to plastered walls; never discolors. Is the whitest white known. Let us send you our book "Facts and Facsimiles."

J. A. & W. BIRD & Co.
10 Weld Street, BOSTON, MASS.

WEATHER-PROOF FOR OUTSIDE PURPOSES


AQUALITE

THE LATEST AND BEST
COLD WATER PAINT

For Outside and Inside Work.
Fire-Proof and Weather-Proof.

All the advantages of others, many features exclusively its own.

Columbia Refining Co.
32 BROADWAY, NEW YORK.



Red, Brown,
Buff and Black
**MORTAR
COLORS**



The Strongest and Most Economical in the Market.

One-half the amount of our Mortar Colors will do the work of any other and they are unsurpassed in Strength, Fineness, and Body.

Write for Samples and Quotations.

CHATTANOOGA PAINT CO.
CHATTANOOGA, TENN.

We manufacture a superior grade of
Red Oxide of Iron Paint for Railroad Cars, Bridges, Barns, Fences, Etc.

ASTEROID

The Permanent
ROOFING.

ALL BUILDINGS
SCOTT & CO. MANFRS
EST. 1872.
CINCINNATI, O.

A FIREPROOF PAINT

ADAPTED FOR MILLS, FACTORIES, WAREHOUSES, ETC.
ALMOST AS DURABLE AS OIL PAINT AND AS CHEAP AS WHITEWASH

PERMANITE

TRADE MARK

A PERMANENT COATING—WHITEST WHITE—COVERS BEST—LASTS LONGEST

SOLE MANUFACTURERS
M. EWING FOX & CO.
NEW YORK CITY

Southern Selling Agents
HOLDT & BULLINGTON,
ATLANTA, GA. RICHMOND, VA.

The Dixie Ventilator

Pat. Sept. 3, 1901.

WHY is this Ventilator endorsed by reputable Engineers and Architects?

BECAUSE It is scientifically and practically constructed and adapted to the exigencies of modern buildings. It embodies the entirely new principle of a curved deflector, which renders it unique.

Dowman-Dozier Mfg. Co., Atlanta, Ga.

SKYLIGHTS, HOT AIR VENT, ROOFING OF ALL KINDS,
CORNICES, FIRE-PROOF WINDOWS,
EXHAUST AND BLOW PIPE.

W. C. WULF & CO., LOUISVILLE, KY.

The... BOURSE

Exhibition Department

Offers you an opportunity to extend your business.

For full particulars address
Exhibition Department, THE BOURSE, Philadelphia.

For PAINTING MILLS, FACTORIES AND WORKSHOPS
USE ONLY PAINTS BASED ON
ZINC WHITE.

A pamphlet, "The Paint Question," will tell you about it. Send TO US for one. The New Jersey Zinc Co., Empire Bldg., 11 Bdw., New York.

MINERAL WOOL

FIRE, SOUND AND VERMIN PROOF INSULATOR.

Samples and Circulars Free.


U. S. MINERAL WOOL CO., 143 Liberty St., NEW YORK.

Union Bond Steel Wall Ties


All Kinds—Galvanized

FOR
Face Brick, Veneering, Terra
Cotta, Hollow Walls, etc.

UNION BRICK BOND COMPANY, Exclusive Mfrs., PITTSBURG, PA.



Anchor Brand Roofing.



Our Anchor Brand Natural Asphalt Roofing

is manufactured especially for permanent buildings. It has been in use for years on some of the largest and most important manufacturing plants in America, as well as on some of the largest railway terminals, stores, office buildings, theatres and public buildings generally. It is the best roofing made. Send for conclusive evidence.

W. H. RAPPLE, S. W. Representative,
P. O. Box 31, Shreveport, La.

Warren Chemical & Mfg. Co., 16 BATTERY PLACE, New York City.



AMERICAN TIN PLATE CO., Battery Park Bldg.
NEW YORK.

The sole owner of the "MF" brand and MF
process of making terne plates (Roofing Tin).

The MF process of manufacturing roofing tin originated in South Wales two generations ago; from that time to the present the product of the MF process has been the most reliable, and hence the "most favored."

Recently the New Method by which terne plates are finished in a manner that gives further protection against corrosion has been combined with the MF process. The result of this combination is the U. S. Eagle N. M. Brand.

You can have the new art booklet, "A Fifty year Roof," free if you write to W. C. Crone-meyer, Agent, Carnegie Bldg., Pittsburg, Pa.



ROOFING VALUE



THE value of a roof depends largely on the reputation of its makers. We have had the confidence of buyers

Since 1837

Ask for FLINTKOTE ROOFING
Durable, Inexpensive, Fire-proof.



J. A. & W. BIRD & COMPANY "The Flintkote Folks"
BOSTON, MASS.



SAGENDORPH'S Patent Sectional

METAL CEILINGS

The Penn Metal Ceiling and Roofing Co., Ltd.

14 Harcourt St.
(Back Bay),
BOSTON, MASS.

23d and Hamilton Sts.
PHILADELPHIA,
PA.

CORTRIGHT METAL ROOFING

Is Recognized As the Standard

Shall we mail you our new Catalog
"The Clutching Argument"?

Cortright Metal Roofing Co.
Philadelphia and Chicago.

NATIONAL ROOFING & SUPPLY CO.
LOUISVILLE, KY.

Gravel Roofers.
Cement and Asphalt Pavers.
Building Papers.
Two and Three-Ply Ready Roofing.

American Roofing Company,
MOBILE, ALA.

GRAVEL ROOFS.

METAL SHINGLE ROOFING Best for house or barn. Fire-proof. Easily laid. Cheaper than slate or wood. Prices, catalogue and testimonials FREE.

MONTESS SHINGLE CO., Camden, N. J.

CAREY'S

THERE'S NOTHING BETTER MADE IN THE ROOFING LINE

ASK FOR SAMPLE AND CATALOGUE.

The Philip Carey Mfg. Co.
SOLE MANUFACTURERS,
Lockland, Ohio.

29 Branches

MAGNESIA FLEXIBLE CEMENT ROOFING

See our Covering Advertisement on Page 28

IN OUR

Natural Asphalt Roofing

no coal-tar is used. Materials containing coal-tar become dry and brittle under exposure to the weather, while the oils in natural asphalt are inviolable. This partly accounts for the satisfactoriness of our roofing, which has been on the market for years.

Stowell Manufacturing Co., Jersey City, N. J.

Count Profits

by your list of satisfied customers. The patronage that pays is not easily lost if you use nothing short of the best materials. Plumbers and Steam Fitters avoid needless repairs by using

WISCONSIN GRAPHITE PIPE JOINT PASTE.

Where you put it it stays; no cracks or leaks. Immeasurably better than red or white leads. Write for samples and prices.

Wisconsin Graphite Company,
PITTSBURG, PA.



RAW HIDE WATER-PROOF PAPER.

RAW-HIDE PAPER

is water-proofed thoroughly throughout the sheet, and not simply coated; it is perfectly clean to handle and unrolls freely in any temperature.

C. S. GARRETT & SON CO., Paper Makers,
PHILADELPHIA.
20 and 22 S. Marshall St.,

Prepared Gravel and Slag Roofing

As prepared and applied by our specifications, will give you a perfect roof covering for all your buildings. Compare our roofings with others. Samples and Catalog for the asking.

Armitage Mfg. Co., Richmond, Va.

SPECIALTIES.—2 and 3-ply Roofing, Insulating, Building and Sheathing Papers, Asphaltum, Pitch, Roof Paints, etc.

Arrow Brand Asphalt Ready Roofing Contains No Tar.

ASPHALT READY ROOFING CO.
136 Water Street, NEW YORK.

PERFECTED GRANITE ROOFING

The Standard Ready Roofing.

If you want the best prepared roofing money can buy, get Perfected Granite Roofing. Will resist fire longer than any roofing material with the same range of adaptability and is not affected by steam, acids, heat, cold, rain, snow or chemical fumes. Easy to lay and always lays smooth.

Send for photo pamphlet.

Eastern Granite Roofing Co.
Irving Building, New York.



READY ROOFING that can be easily and quickly applied.

TWO WINNERS:

White Rock Stone Surfaced and Vulcanide Roofing.

Good for any kind of a building or structure that requires a serviceable, permanent roof. Proof against the elements, steam or acid fumes and fire-resisting. Send for samples.

BUCHANAN-FOSTER CO., 724 Drexel Bldg., Philadelphia, Pa.

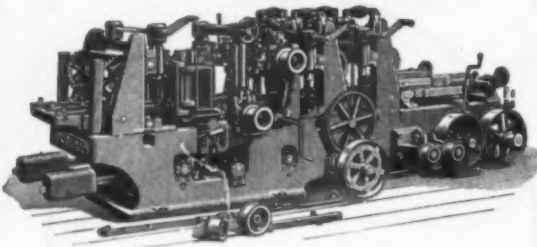


Metal Skylights

built expressly to overcome their many drawbacks. Our fully illustrated Catalogue shows clearly a faultless construction. Shall we mail you a copy?—its free, of course.

E. VAN NOORDEN CO.
950 Massachusetts Ave.
BOSTON, MASS.

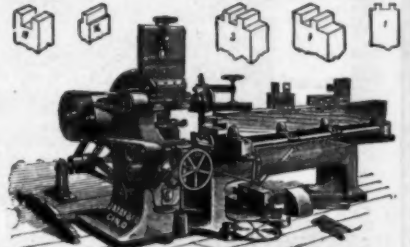
NEW WOOD WORKING MACHINERY



No. 26, New Double Cylinder Planer, Matcher and Jointer.
(Patented January 9, 1900; March 20, 1900.)

To the wood worker ever on the lookout for the latest and best in the wood working machinery line, we hereby extend a cordial invitation to investigate what we have to offer in new and improved machines especially designed for his particular work. We make a complete line and for all purposes. Can furnish single machines or entire equipments with equal facility and with expedition.

We have our machines in use in the South, and users write us letters which have the right ring; they tell us how good the machines are. Copies of these letters on request. New catalogue, book on sanding machines, and band saw pamphlet to those writing for them.



No. 5 Patent Universal Car Tenoner.
For single, double and triple tenons, gaining, cutting-off, etc.

J. A. FAY & EGAN CO., 270-290 W. Front St., CINCINNATI, O.

Atkins "Improved Hoosier Extension" Hack Saw

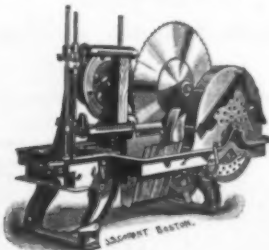
The time you lose depends much on the tools you use. This Hack Saw Frame, quickly adjustable to different length blades, is a time-saver. Our Hack Saw Booklet will tell you why. Write for it.

**SAWS
of All Kinds**

E. C. ATKINS & CO., Inc.
Leading Saw and Tool Manufacturers,
INDIANAPOLIS, IND.

BRANCHES:—Memphis, Tenn.; Atlanta, Ga.; Minneapolis, Minn.; Portland, Ore.; No. 64 Reade St. N. Y. City; Chicago, Ill.; Toronto, Can.; Seattle, Wash.

The Chase Shingle Machine



MADE BY
Chase Turbine Mfg. Co.
ORANGE, MASS.

BUILT entirely of iron and steel.
16, 18 and 40 cuts per minute,
with saw running 1500 revolutions.
Carriage automatically stops at the
end of the stroke in position for
another block.

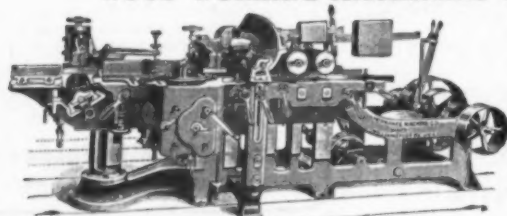
This machine will cut shingles, heading or box boards from
8 to 30 inches long and from 4 to 15 inches wide, according
to size of saw and length of block.

SOLD BY

STRATTON & BRAGG CO.
PETERSBURG, VA.

HERMANC 1903 Four Side Moulder.

WOOD WORKING MACHINERY UP-TO-DATE.



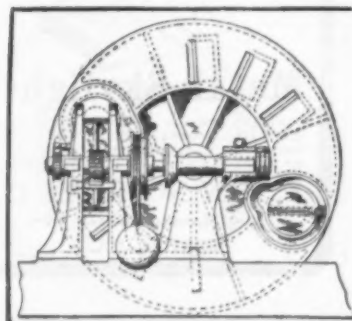
HERMANC MACHINE CO.,

Wider belts, larger journals,
stronger feed, side heads plane
as smoothly as top heads, sectional
independent pressure bars.

Send for descriptive circular
with full details, and let us tell
you about it.

Panel Raisers, Saw Benches,
Surfacers, Gang Rip Saw, Self-
Feed Rip Saws, Hand Planers,
and other new and up-to-date
machines.

Williamsport, Pa.



**The American Excelsior
and
Machine Company**

is
the manufacturer of an improved
Rotary Machine for Producing
Excelsior. It is unique.

Baltimore, Maryland.

LANE'S LATEST GANG EDGER 14 INCH SAWS



Highest Award, Gold Medal, at the S. C., Interstate & W. I. Exposition.

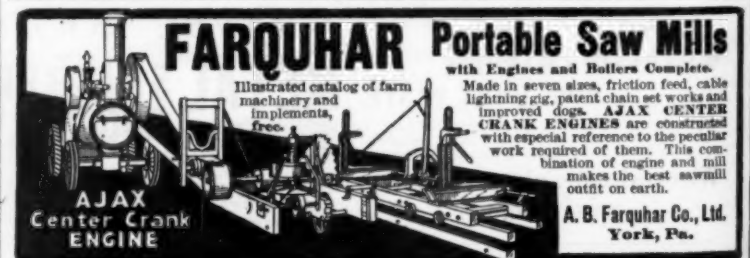
PAR EXCELLENCE AT THE PRICE.

\$137.45 with 2 saws, 1 movable; \$145.78 with 3 saws, 2 movable. Terms Cash F. O. B. Montpelier, Vt. Will edge straight. Front roll raised and feed stopped from operator's position. Saws quickly changed. Front and rear tables easily removed for transportation.

We also manufacture Saw Mills, Set Works, Dogging Devices, etc., Water Wheels, Log Jacks, Canters and Niggers, Drag, Swing and Friction Feed Cutting-Off Saws, Live and Dead Rolls, Edgers, Trimmers, Cutting Off Tables, Lath, Shingle and Clapboard Machines. Planers and Matchers, Transmission Machinery and the Anderson Patent Traveling Cranes.

Circulars and Prices on Application.

Lane Manufacturing Company,
MONTPELIER, VERMONT, U. S. A.



FARQUHAR Portable Saw Mills

with Engines and Rollers Complete.

Made in seven sizes, friction feed, cable
lighting rig, patent chain set works and
improved dogs. **AJAX CENTER**
CRANK ENGINES are constructed
with especial reference to the peculiar
work required of them. This combination
of engine and mill makes the best sawmill
outfit on earth.

**AJAX
Center Crank
ENGINE**

A. B. Farquhar Co., Ltd.
York, Pa.



OBER MFG. CO.

CHAGRIN FALLS, OHIO, U. S. A.

Manufacturers of

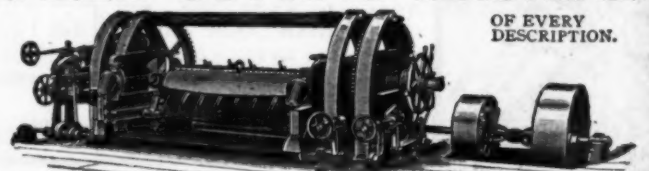
**PATENT HANDLE,
SPOKE and VARIETY TURNING LATHE,
SANDERS, ETC.**

Lathes for Turning Axe, Adze, Pick, Sledge,
Hammer, Hatchet, Auger, File, Knife, Chisel,
Fork, Hoe, Rake, Broom, Ice Hook and Map
Handles, Pike Poles, Whiffletrees, Yokes,
Spokes, Porch Spindles, Table Legs, Tool
Stakes, Ball Bats, Mallets, Gun Stocks, etc.

**Boring Machines, Automatic Sanders,
Chucking Machines, Shapers.**

We are Positively Headquarters for Strictly High Grade VENEER CUTTING MACHINERY

OF EVERY
DESCRIPTION.



YOU WANT THE BEST. WE HAVE IT.

THE COE MFG. CO., Painesville, Ohio, U. S. A.

ESTABLISHED 1859.

INTERNATIONAL CREOSOTING AND CONSTRUCTION COMPANY, WOOD PRESERVING.

Address all communications to
Office, Galveston, Texas.

Send for Pamphlet.

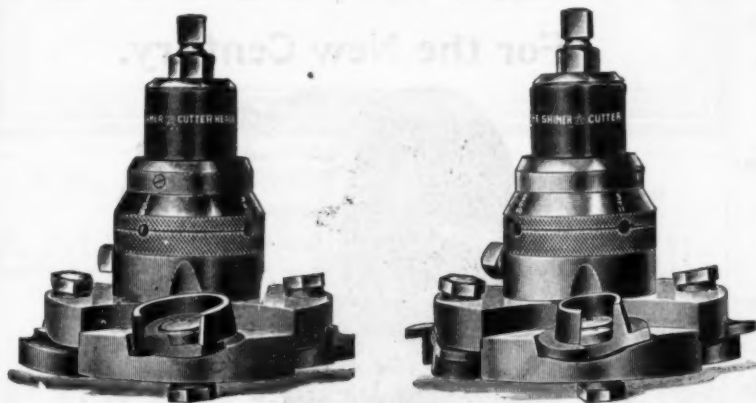
WORKS: BEAUMONT, TEXAS.
TEXARKANA, TEXAS.

Capacity 18,000,000 feet B. M. per Annum.
Capacity 57,300,000 feet B. M. per Annum.

CAPACITIES BASED ON
24-HOUR TREATMENT.

Timber treated with any of the best
processes now in use.

Cross-Grained and Knotty Lumber IS WELL FINISHED WITH



The Shimer Cutter Head

It reduces the number of culls as no other Head can.

The Cutters work alternately with side clearance; ply their way through the worst lumber that you may find for high grade finish.

The bit seats and their bit and bolt combinations supply the make-ready for every emergency.

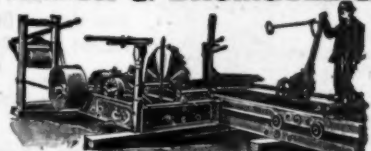
For tight and loose fitting of tongue and groove joint, a single turn of the Expansion ring will suffice, with automatic stop and lock.

Nothing } COMPLICATED,
TO GET OUT OF ORDER.

The Shimer Cutter Head is made to fit any make of matcher or moulder. You take the measurements—we do the rest, and guarantee to fit your spindles.

Address **S. J. Shimer & Sons,**
MILTON, PENNSYLVANIA.

HENCH & DROMGOLD'S



SAWMILL AND ENGINES

A wonderful improvement in Friction Feeds and Gig-Backs. Back motion of Carriage 3 times as fast as any other in the market. Friction Clutch Feed, causing all the feed gearing to stand still while backing; great saving in power and wear. Catalogue and prices free. Also Spring Harrows, Cultivators, Corn Planters, Shellers, etc. Mention this paper.

The Hench & Dromgold Co., Mfrs.
YORK, PA.

BEACH'S Sawing Machinery.

H. W. BEACH, MONTROSE, PA.

DE LOACH MILL MFG. CO.

Manufacturers of

High-Grade Mill Machinery

ATLANTA, GA., and NEW YORK, N. Y.

Plow Handle MACHINERY.

Write for Circular and Prices.

B. M. ROOT, YORK, PA.

Wood-Working Machinery

FOR ALL PURPOSES.



H. B. Smith Mach. Co.
Smithville, N. J.

BRANCHES: NEW YORK,
CHICAGO,
BOSTON.

Saw Mill Men

INCREASE YOUR OUTPUT.

A Soule Steam Feed will do the work, and cost little. Will pay for itself quickly.

Write for special prices.
SOULE STEAM FEED WORKS,
Send for Catalogue "M" MERIDIAN, MISS.

West Pascagoula

Creosoting Works.

West Pascagoula, Miss., U. S. A.

Situated on Pascagoula Bay and on the line of the Louisville & Nashville Railroad. Established 1875. Orders for creosoted piles, telegraph poles, cross-arms, electric conduits, paving blocks, sawed ties and timber, promptly executed. Cylinders 130 feet long. Capacity one million feet per month. A. B. C. code used. Cable address Pierre, West Pascagoula, Miss. Address,

JOHN B. LINDSEY, Supt.

Chattanooga Machinery Co.

Chattanooga, Tenn.

Manufacturers of

Saw Mill and Wood-Working Machinery.
Insulator Pin, Bracket and Cross-Arm Machinery.

AXE HANDLE MACHINERY.

FRANK J. LELAND,
KNOXVILLE, TENN.

Mill and Machinery Supplies

Get Prices from

Cotton States Belting & Supply Co.

Main Store—ATLANTA, GA.
Branch—SAVANNAH, GA.

The Montgomery Lumber Mfg. Co.

Montgomery, Ala.

Consolidated plants of the Alabama Hardwood Mfg. Co. and the Montgomery Sash, Door & Blind Co., greatly enlarged and re-equipped.

MANUFACTURERS OF

Flooring, Ceiling, Finishing
Moulding, Sash, Doors
and Blinds.

Also Picker Sticks, Pick Leavers, Sweep Sticks, Plugs and Shuttle Blocks.

Prepared to execute promptly orders of any magnitude at advantageous prices. Special attention invited to our ability to promptly fill orders for PICKER STICKS and kindred articles in any quantities. Correspondence solicited.

Burton Veneer Co.,

Manufacturers

Kiln Dried Gum, Poplar
and Spruce Pine.

1-32 to 5-16 thick.

Correspondence Solicited.

MONTGOMERY, ALA.

YELLOW PINE!

"WILKINS FILLS THE BILL" For Any Quantity, For Anywhere.

Weekly Steamer Shipments to New York City and Vicinity; also Rail Facilities. Timbers: All Kinds (Including Car Sills), Cross Ties. Kiln-Dried Saps. Flooring, Ceiling, Etc. Tupelo Gum.

Van S. Wilkins Lumber Co.

Mills: BEAVER MEADOW, ALA.
EVANSTON, MISS.
PERDIDO, ALA.

Mobile, Ala. P. O. Box, 582.

THOMAS FORMAN CO.,

DETROIT,
MICH.

MANUFACTURERS OF

High Grade **FLOORING,** Kiln-Dried, Bored
Maple and Oak and End Matched

The most durable floor ever made, for Cotton Mills, Factories,
Warehouses and Office Buildings.

CORRESPONDENCE SOLICITED.

We can refer to many large buildings in the South which we have furnished with this material.

THE T. WILCE CO.

Polished Hardwood Flooring,
Kiln Dried, Bored and End-Matched.

22d and Throop Streets, CHICAGO, ILL.

Maple Flooring for Cotton Mills, Factories, Warehouses and Buildings for like purposes a special feature.

Delivered Quotations made to any point in the United States. Write for prices and our descriptive Booklet.

The Red Cypress Lumber Company, Macon, Ga.

MANUFACTURERS

BAND SAWED CYPRESS, PINE, HARDWOOD,
SHINGLES AND LATHS.

We own 25,000 acres of Timber Land. Mill located near Gulf Coast. Capital Stock paid in \$200,000

EDWIN A. HALLAM,
President.

W. E. McCaw,
Vice-President.

WM. J. CRICHTON,
Secretary and Treasurer.

J. P. STETSON, President.

J. M. MATHEWS, Secy. and Treas.

STETSON LUMBER CO., Macon, Ga.

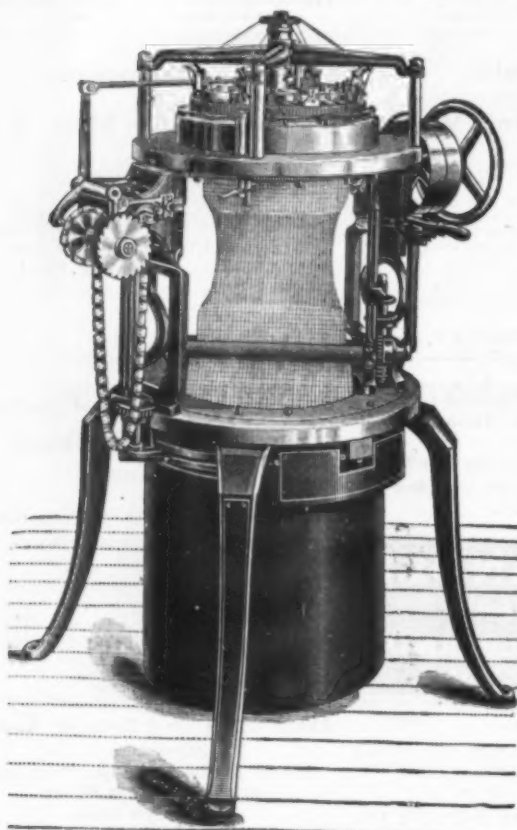
Manufacturers and Wholesale Dealers in

Rough and Dressed Long Leaf Yellow Pine.
Car Stock and Bridge Timbers a Specialty.

McMICHAEL & WILDMAN MFG. CO.

Rib Knitting Machinery

AUTOMATIC AND PLAIN.



FOR ALL CLASSES
OF
RIBBED HOSIERY
AND
UNDERWEAR,
COMBINATION SUITS,
SWEATERS, Etc.

ESTABLISHED REPUTATION FOR
Largest Production,
Best
Quality Fabric,
Durability,
Economy of Operation.

Full particulars, description and samples furnished upon application to the

**McMichael & Wildman
Mfg. Co.,
NORRISTOWN, PENNA.**

Scott & William's

BUILDERS OF

RIB KNITTING MACHINERY

For Underwear and Hosiery.



We call your attention to our machinery for making all kinds of Underwear, Hosiery, Athletic Garments, Toques, Tam O'Shanter, Gloves, etc.

The illustration shows our Latest Improved Single Stitch Looper with the needle working from the inside; it also has a point ring tension attachment. This machine can be made of any desirable gauge necessary for the purpose of closing the toes of stockings and other knitted goods where two edges are to be joined together.

**We build Ribbers, Underwear and
other Machinery for Knitting Mills**

as well as a Complete Line of Full Automatic and $\frac{3}{4}$ Automatic Seamless Hosiery Machinery. Full particulars, samples and special catalogues on application.

2079 E. Cumberland Street,

Philadelphia, Pa., U. S. A.

KILBURN-LINCOLN & CO., FALL RIVER, MASS
LOOMS FOR PLAIN AND FANCY WEAVING.

The Kilburn-Lincoln High-Speed Loom is the Result of over fifty years' experience in Loom Building.

LATCH NEEDLES

For All Makes of Machines.

Mayo Knitting Machine & Needle Co., Franklin Falls, N. H.

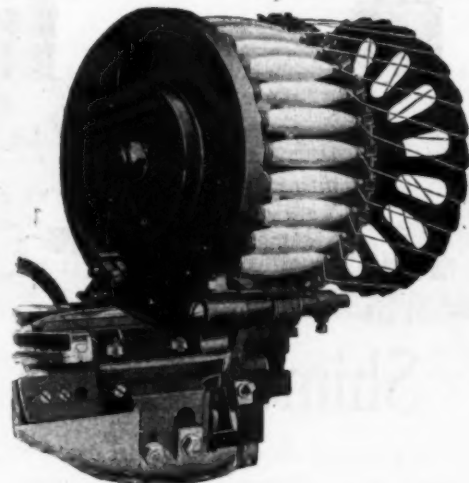
LOWELL MACHINE SHOP, LOWELL, MASS.

Cotton Machinery

We Manufacture Everything Required
for the Complete Equipment of Cotton Mills.
Plans and Estimates Furnished on Application. Correspondence Solicited.

A NEW HOPPER

For the New Century.



The Hopper makes the Loom. Note the Size and the Simplicity.

THE DRAPER CO.,

Hopedale, Mass.



CARVER COTTON GIN CO.

COTTON-
SEED

Linter

For 1903.

Patent Automatic Feeder.
Adjustable Seed Board.
Adjustable Friction Drive for Float.
New Method Drive.
Patent Iron Cylinder.
Whole Saw Wood.
Whole Saw Iron Cylinder.

WE ALSO MAKE

Cotton Seed Hullers, Saw Filing Machines,
Gummers, Cotton Gins.
East Bridgewater, Mass., U. S. A.

ESTABLISHED 1873.

WHITINSVILLE SPINNING RING CO.

Our Patented Specialties.
DOUBLE RIBBED RINGS, U.S.
STANDARD TRAVELER CLEANERS.
METALLIC BURNISH LIKE
THAT PRODUCED BY
THE TRAVELER.

WHITINSVILLE, MASS. U.S.A.

CARDS.
DRAWING.

SPINNING
FRAMES.

MASON
MACHINE WORKS,
COTTON MACHINERY,
TAUNTON,
MASS.

COMBERS.
LAP MACHINES.

MULES.
LOOMS.

Our Complete Stock of
Everything Necessary in a Cotton or
Woolen Mill
enables us to supply your wants promptly
We solicit your patronage
AMERICAN SUPPLY CO. PROVIDENCE, R. I.

O. A. ROBBINS, ENGINEER, Machinery & Equipment Cotton Mills.

OFFICE: Cor. 4th and Tryon Sts., CHARLOTTE, N. C.

A. H. WASHBURN,
SOUTHERN AGENT
SACO & PETTEE MACHINE SHOPS
Everything needed for the Complete Equipment of COTTON MILLS to Manufacture
Yarns and Woven Fabrics of all Kinds,
CHARLOTTE, NORTH CAROLINA.

Cottonseed Oil Machinery.

(Not in any Combination or Trust.)

Modern Ginning Systems.

Write for Catalogue.

E. Van Winkle Gin & Machine Works,
Atlanta, Georgia, U. S. A.
Local Oil Mills and Ginneries Combined.

Cottonseed Oil Machinery.

Tobacco Cutting Machinery.

Brass Goods FOR ENGINE BUILDERS, STEAM, WATER AND GAS FITTERS.
Write for Catalogue.

BUCKEYE IRON & BRASS WORKS,
DAYTON, OHIO, U. S. A.

COTTONSEED OIL MACHINERY

LATEST IMPROVEMENTS.

FULL AND COMPLETE LINE OF

TOBACCO MACHINERY.

THE CARDWELL MACHINE CO.
RICHMOND, VA.

FOUNDRY BARROWS



Substantially Braced.

Metal Barrows

Mining Cars,

Coal or Coke Wagons.

Ask for Catalogue,

Jackson Mfg. Co. Harrisburg, Pa.

THE D. A. TOMPKINS CHARLOTTE, N. C. — COMPANY COTTON MILLS



Save Your Factory From Fire.

Insurance may be able to build another Factory for you but it won't save you for the loss of time. 60% of all fires in large cities are put out with Chemical Extinguishers before the fire gains headway. Be ready "on the spot" for any fire with

Badger's Fire Extinguisher.

Strong, Simple, Always Ready. Throws a stream 50 feet. A child can use it. Send postal card for full particulars. Used by the United States Government,
HUNDREDS OF MILLS,
the Boston & Maine, Seaboard Air Line, Boston Elevated and other railroads.

Badger Fire Extinguisher Co., Dept. A, 32 Portland St. BOSTON, MASS.

**LOWELL
CRAYONS.**
15
Different Colors
and White.
Prices and Samples of
Colors on Request.
Lowell Crayon Co.
Lowell, Mass.

SHERWOOD BOBBIN & MFG. CO.
Greensboro, N. C.
MANUFACTURERS OF

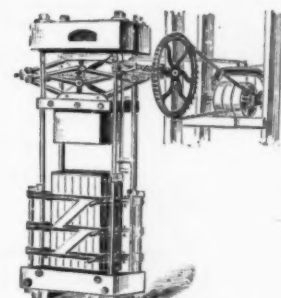
Speeder, Slubber, Inter-
mediate and Twister Bob-
bins, Skewers, Spools,
Spool Skewers and
Clearer Rolls.

NYE & TREDICK CO.
Circular Rib Knitting Machinery
For Underwear, Combination Suits, etc., Men's
Underwear, Sweaters and Hosiery.
606 Arch Street, PHILADELPHIA, PA.

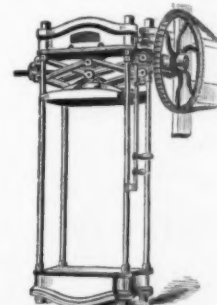
**SECOND-HAND
HYDRAULIC MACHINERY**
FOR
Cotton Seed Oil Mills.

Address "AMERICAN,"
1505 Manhattan Bldg., Chicago

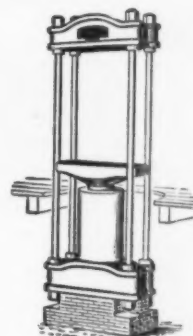
SAVOGRAN Cleans Wool,
Mill Floors,
Anything.
INDIA ALKALI WORKS, Boston.



Knuckle-Joint
Cloth-Baling Yarn and Press.



Knuckle-Joint
Cloth-Baling and Finishing Press.



Hydraulic
Cloth-Baling and Finishing Press.

Manufactured by

G. H. BUSHNELL PRESS CO.

Thompsonville, Conn., U. S. A.

STUART W. CRAMER, Charlotte, N. C.
SOUTHERN AGENT.

Also, OIL MILL MACHINERY,
SOUTHERN ENGINEERING CO., Sumter, S. C.
SOUTHEASTERN AGENTS.

W. H. BIGELOW, Agent,
Tempered and Side Ground Card Clothing.
 Tops Reclothed. Lickerins Rewound.
 12 WEST 4th STREET, CHARLOTTE, N. C.
 LONG DISTANCE PHONE. REGULAR SIZES OF CLOTHING ALWAYS IN STOCK.

Cotton Oil & Fibre Co.

Southern Office and Works:
 Norfolk, Va.

Land Title Bldg:
 Philadelphia, Pa.

Producers of

Crude and Refined Cotton Seed Oil,

Cotton Seed Cake, Hulls, Mixed Hulls,
 Linters, Etc.

Prime Cotton Seed Meal "Cofco" Brand.

Samples Free On Request.

Net 100 Lbs. Fully Decorticated.

Guaranteed Analysis:

Ammonia.....	Not Less Than 8.50 Per Cent.
Nitrogen.....	" " " 7 " "
Protein.....	" " " 43 " "
Crude Oil and Fat.....	" " " 9 to 10 " "



Brushy Mountain Steam Coal
 Standard Steamer.

BIG BRUSHY COAL & COKE CO.

Successors to

CROOKED FORK COAL & COKE CO.

General Office, - - - Harriman, Tenn.



HOW ABOUT the dust from your EXHAUST FANS?
 Is it giving you trouble? If so the

"Hartford" PATENT IMPROVED Dust Collector

will obviate the nuisance. Leaflet No. 55-H tells all about it.

We also Install Complete Exhaust Systems.

THE HARTFORD BLOWER CORP.

Hartford,

110 Suffolk St.

Conn.

CYCLONE DUST COLLECTOR



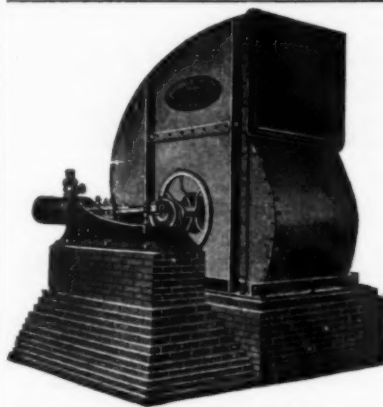
DIXIE MANUFACTURING CO
 BALTIMORE, MD.

Exhaust Fans,
 Exhaust and Blow Piping,
 Cyclone Dust Collectors,
 Dust Collectors,
 Automatic Furnace Feeders.

Mechanical Experts in
 Removal of
 Shavings, Dust, Lint and Odors.

Estimates Furnished and All Work
 Guaranteed.

Correspondence Solicited.



Directed Connected Fan and Engine

A & J STEEL PLATE FANS

Heating,
 Ventilating,
 Drying, Etc.

ANDREWS & JOHNSON CO.

Chicago. Illinois.

THE MEANS & FULTON IRON WORKS

OFFICE & WORKS 4TH ST. AND 8TH AVE. NORTH, BIRMINGHAM, ALA.
 MANUFACTURERS AND BUILDERS OF BOILERS, TANKS, STAND PIPES AND BLAST FURNACES,
 AND WORKERS IN SHEET IRON AND STEEL. ESTIMATES FURNISHED ON STRUCTURAL WORK. BIRMINGHAM, ALA.

RO. PRESTON MEANS,
 PRES.
 JOHN H. MEANS,
 VICE-PRES.
 W. M. FULTON,
 MANAGER

SOUTHERN COTTON OIL COMPANY,

HEAD OFFICE: 11 BROADWAY, NEW YORK.

Mills and Refineries in Georgia, North and South Carolina, Alabama, Tennessee, Arkansas, Louisiana and Texas.

MANUFACTURERS OF ALL
COTTON SEED PRODUCTS.

Oil Cake and Meal, Hulls,
 Linters, Soap Stock
 and Soap.

Refiners of

COTTON OIL,

All Grades.



Manufacturers of

LARD COMPOUND

AND

Wesson Cooking Oil.

Refineries Located at—Savannah, Augusta and Atlanta, Ga.; Charleston, S. C.; Charlotte, N. C.; Montgomery, Ala.; Houston, Tex.; New Orleans, La.; Memphis, Tenn., and Little Rock, Ark.



GOLD MEDALS
 AWARDED.

CHICAGO 1893.

PARIS 1900.

The American Cotton Oil Company,
 27 Beaver Street, New York City.

MANUFACTURERS AND REFINERS.

COTTONSEED PRODUCTS.
 Oil, Cake, Meal, Linters, Ashes, Hulls.

GOLD MEDALS
 AWARDED

BUFFALO 1901.

CHARLESTON 1902.





TO PLEASE YOUR CUSTOMERS

SELL THEM "HAM" GOODS.

Our Tubular Lanterns and Lamps are made to give reliable light and plenty of it, with no smoke and no trouble.

SATISFACTION GUARANTEED.

We Sell to the Jobbing Trade only.

C. T. HAM MFG. CO.
ROCHESTER, N. Y.

NOW READY!

Will be sent to any part of the United States, Free of Express Charges, on receipt of \$10

36th ANNUAL NUMBER OF

POOR'S MANUAL

OF THE

**Railroads of the United States,
1903.**

In One Volume. Royal Octavo, Cloth. 1900 Pages.

For further information send for circular

POOR'S RAILROAD MANUAL CO.

JNO. P. MEANY, MANAGER.

68 William Street, NEW YORK.

Pocahontas Coal

SMOKELESS, SEMI-BITUMINOUS.

Is the Standard Steam Fuel for the World.

CASTNER, CURRAN & BULLITT, Sole Agents, PHILADELPHIA.

BRANCH OFFICES:

1 Broadway, New York. 70 Kilby Street, Boston, Mass. Citizens Bank Bldg., Norfolk, Va.
Neave Building, Cincinnati, O. Terry Building, Roanoke, Va. Old Colony Building, Chicago, Ill
4 Fenchurch Avenue, London, England

INCORPORATED 1884

KENSEE

STANDS FOR ALL THAT IS BEST IN BLUE-GEM AND JELICO COALS.

ADDRESS MAIN JELICO MT. COAL CO. KENSEE, KY.
(TELEGRAPH JELICO, TENN.)

ALABAMA CONSOLIDATED COAL & IRON CO.

BIRMINGHAM, ALA.

Manufacturers of the Celebrated Brands of
FOUNDRY IRON:

"Clifton" and "Etowah"

Also Miners and Shippers of HIGH-GRADE STEAM COAL, and Makers of the Well Known
"STANDARD" FOUNDRY COKE.

Selling Agents for the North and West: CINCINNATI, CHICAGO, ST. LOUIS, PHILADELPHIA, PITTSBURGH, NEW YORK.
MATTHEW ADDY & CO.
MOBILE COAL CO., Agents for Coal and Coke in the Mobile Territory.

Jewett, Bigelow & Brooks,

MINERS AND SHIPPERS OF

*Iroquois Splint
and Thin Vein
Pocahontas Coal*

The Two Most Powerful Steam Coals Produced.

MAIN OFFICE, DETROIT, MICH.

Southern Office, Marytown, W. Va.

Eastern Office, Roanoke, Va.

DAVIS COAL AND COKE CO.

MINERS AND SHIPPERS

DAVIS LOCOMOTIVE, STEAM AND SMITHING COALS

Sole Agent for Elk Garden **Big Vein Cumberland Coal.**

DAVIS COKE FOR ORE SMELTERS, FOUNDRIES, AND FAMILY USE.

Shipments to all points accessible to rail or water.

BALTIMORE. PHILADELPHIA. NEW YORK. BOSTON.

W. K. NIVER COAL CO.

Miners and Shippers of the Celebrated

Pen Mar Big Vein Cumberland and Paint Creek Kanawha Splint, Steam and Gas COALS.

Unexcelled for Steam and Smithing Purposes,

General Offices, Continental Trust Bldg., Baltimore, Md.

BRANCH OFFICES:

625 Marquette Bldg., CHICAGO. 1021 Union Trust Bldg., CINCINNATI, O.
101 Milk St., Boston, Mass. 200 E. Genesee St., Syracuse, N. Y. Altoona, Pa.

Shipping Wharves: BALTIMORE, NEWPORT NEWS, PHILADELPHIA AND STATEN ISLAND.

Burroughs & Kramer, Durham, N. C.

Selling Agents for North and South Carolina.



"THE ALLISON" INVALID CHAIR.

Strong, Light, Comfortable.
Easily Adjusted.
Liberal Discount to the Trade.
Catalogue "B" Free.

W. D. ALLISON CO.
998 N. Alabama St., Indianapolis.

SITUATIONS WANTED.

Advertisements under this head will be inserted at the rate of one cent a word for each insertion.

WANTED.—Situation with a good reliable Lumber Company. Fifteen years' experience buying, selling and inspecting lumber and timber. Address B, care Manufacturers' Record.

WRITE TO US

For Competent

TECHNICAL MEN

For all classes of work.

5,000 positions filled in 10 years.

Engineering Agency,
120 Monadnock Block, CHICAGO.

If you wish to keep posted on the progress of the South, read the MANUFACTURERS' RECORD. Price \$4 a year.

CAMERON STEAM PUMPS



Have no equal in simplicity, compactness, durability and efficiency, having no outside valve gear, They will do more work with less power than any others.

**BOILER FEEDING,
MINES,
FIRE PURPOSES,**

**REFINERIES,
BREWERIES,
RAILROADS,**

**TANNERIES,
IRRIGATING,
FILLING TANKS.**

Don't hesitate to ask questions of us.

A. S. CAMERON STEAM PUMP WORKS,

Foot of East 23d Street, NEW YORK.

ALBERGER COOLING TOWERS

IMPROVED CONDENSING APPARATUS VACUUM PUMPING MACHINERY

Send for Illustrated Catalogue.

ALBERGER CONDENSER COMPANY, 95 Liberty St., NEW YORK

**DENNEY IMPROVED
Rider & Ericsson
HOT AIR Pumps**



Builders of Special
and Experimental
Machinery.
Low Prices.
First-Class Work.

**Reliable, Economical,
Safe and Noiseless.**

Always ready for service. Can be operated by any one. Use any kind of fuel. Built for years by

**AMERICAN MACHINE CO.
Wilmington, Del.**

Agents—The Tribune Hardware Specialty Co.,
105 W. Fayette St., Baltimore, Md.
Send for Catalogue R.

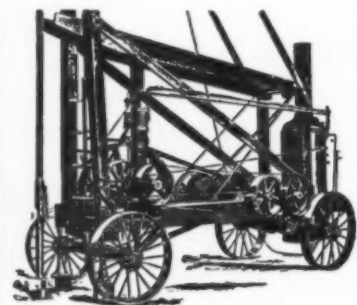


**THE
COOK WELL
CO.** ST. LOUIS, MO.
U. S. A.

Cook's System of
Wells
for Cities,
Towns,
Villages,
Railroads,
Ice Plants,
Breweries and
Manufacturers.

Cook's
Patent Brass Tube
Well Strainer.
Cook's
Deep Well Pumping
Engines.

Estimates furnished
upon application.
Write for Catalogue
and Prices.



WE ARE MANUFACTURERS OF
Portable Drilling Machinery,

Run by Steam, Gasoline or Horse-power;
for Water, Oil or Gas Wells, any depth.
Forty-two different styles. Send for
Catalogue "A."

KELLY & TANEYHILL CO.

68 Chestnut Street, WATERLOO, IOWA.



VANDUZEN STEAM JET PUMPS

Cincinnati, O. **THE BEST IN THE WORLD.**
Pumps any kind of Liquid. Always in order. Never
stops nor freezes. Fully Guaranteed. COST \$1
AND UPWARD. Especially useful for Mines, Quar-
ries, Pits, Wells, Clay Pits, Breweries, on Steamships,
Ferryboats or any place where steam is available and
liquid to be pumped. A full supply in stock. Address,
LEONARD & McCAY, New York City.
HUNTER & DICKSON, Philadelphia, Pa.
LOMBARD COMPANY, Augusta, Ga.
STAUFFER-ESHELMAN, New Orleans, La.
PACIFIC MERCANTILE CO., San Francisco, Cal.
SMITH COURTNEY CO., Richmond, Va.
KEITH-SIMMONS CO., Nashville, Tenn.



The Pump
that Pumps
**SPRAY
PUMPS**
Double-acting,
Lift, Power, Tank
and Spray
PUMPS
Store Ladders, etc.
Barn Door Hangers
HAY TOOLS
of all kinds. Write
for Clie's and Prices
**F. E. MYERS &
BRO.** Ashland, O.

A RELIABLE WATER SUPPLY



for any and all purposes can be had if you use a **NIAGARA HYDRAULIC RAM.** Will work anywhere if there be springs, streams or running water, and will deliver from 500 to 200,000 gallons per day. In use by Pennsylvania Railroad Company and many other satisfied purchasers.

Our finely illustrated catalogue, free upon request, will fully explain the merits of our Ram, and will also show what a few of our customers think of it. Good agents wanted.

Niagara Hydraulic Engine Co., Box 78, Chester, Pa.

UNITED STATES CAST IRON PIPE & FOUNDRY COMPANY,

Railroad and Township Culverts, Flange Pipe and Special Castings of every description.

CAST IRON PIPE.

MANUFACTURERS OF
All Sizes, 3 to 72-in. Internal
Diameter.

Gen. Offices: Chicago, Ill. Eastern Offices: Phila. Southern Offices: Chattanooga, Tenn.

Our Specialties:

CAST IRON PIPE, all kinds and sizes, Fire Hydrants, Gate Valves and Valve Indicator Posts, Hydraulic Tools, Steam Pumping Machinery, Gas Holders, etc. Gas Power Plants with Producers.

See Special Catalogue.

R. D. WOOD & CO.,

400 Chestnut Street, Philadelphia.

Star Drilling Machine Co.

Manufacturers of

**PORTABLE
DRILLING
MACHINES**

FOR

**Water,
Oil or
Gas
Wells.**



Send for Catalogue "D."

104 FULTON STREET, NEW YORK.

Factory at AKRON, OHIO.

Cable, "Drof." Tel., 2440 B John



**DEEP WELL
PUMPS,**

Steam and Power.

Double and single acting
Pumps of large capacity, for
city and village water-works,
mines and factories.

DOWNIE PUMP CO., Downieville, Pa.

HENRY R. WORTHINGTON

PUMPING MACHINERY.

Marine Air and Feed Pumps a Specialty.

WATER METERS
Boston
Chicago
Philadelphia
St. Louis
Butte
Cleveland
Pittsburg
Atlanta
San Francisco
New Orleans
116 Liberty St., New York.

The PULSOMETER STEAM PUMP



handles muddy, gritty
water with no more
injury to its working
parts than to the
pipes the material
passes through.

Pulsometer Steam Pump Co.

135 Greenwich St., NEW YORK.

Water Supply

For Towns, Cities, Mills and
Industries of every kind.
Well Systems and Air Lift
Plants Installed Complete.

The BACON AIR LIFT CO.

91 William St., NEW YORK.

Sole Owners and Manufacturers of the
Simple and Compound BACON
AIR LIFT PUMPS

S. MORGAN SMITH CO., York, Pa.

Hydraulic Engineers.

Manufacturers of

MCCORMICK TURBINES.

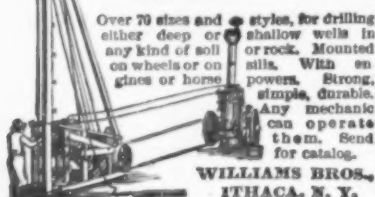
See illustrated ad. in last and next issues.

LET US HAVE YOUR SPECIFICATIONS
SINGLE DUPLEX & ROTATIVE
STEAM AND POWER

PUMPS
THE
JOHN H. MCGOWAN CO.
CINCINNATI

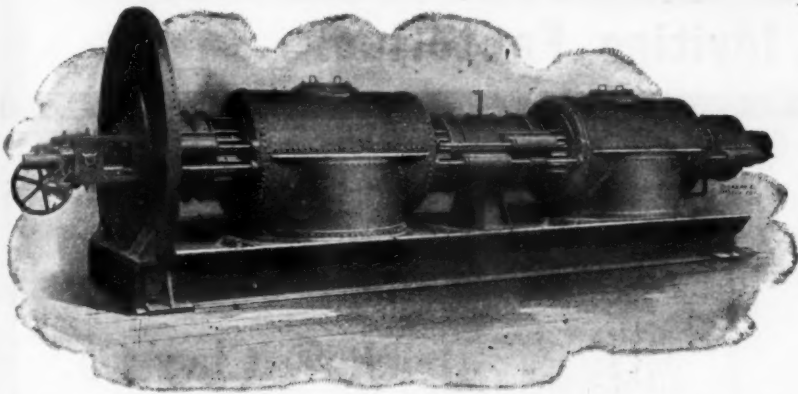
SIMPLE COMPOUND & COMPOUND CONDENSING-
ELEVATOR & WATER WORKS-
PUMPING ENGINES

Well Drilling Machines



Over 70 sizes and styles for drilling
either deep or shallow wells in
any kind of soil or rock. Mounted
on wheels or on
frames or horse
powers. Strong,
simple, durable.
Any mechanic
can operate
them. Send
for catalog.

**WILLIAMS BROS.,
ITHACA, N. Y.**



One unit of two pairs of 21" cylinder gate Victor Turbines on horizontal shaft in steel flume, the flume sheet being removed to show the center discharge cases, etc. For further particulars, address

The best means for the development and utilization of

Water Powers

by the most modern, economic and improved methods for electric lighting, power transmission, mining and general industrial purposes, is afforded by the

Victor Turbine

Its great capacity, high speed, unequaled efficiency, easy working gate, steady motion and close regulation will commend it to all users. Our varieties of wheels enable us to build them for heads up to 2000 feet, and for units up to 12,000 H. P.

THE STILWELL-BIERCE & SMITH-VAILE CO.,

Dayton, Ohio, U. S. A.

PERRY ANDREWS & BRO.

ARTESIAN
AND
OIL WELL CONTRACTORS
AND
DRILLERS.

Have had years of experience
in Oil Well Drilling.

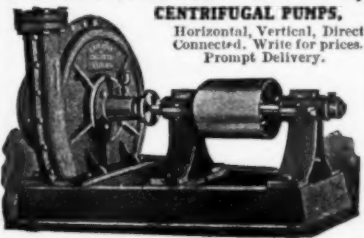
Porter Place,
ATLANTA, GA.



ERIE PUMP & ENGINE CO.
ERIE, PA., U. S. A.

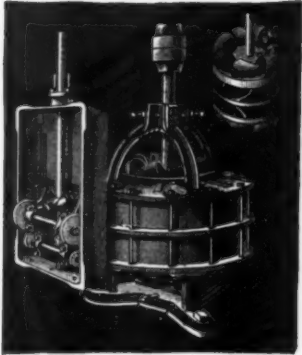
VERTICAL ENGINES,
CENTRIFUGAL PUMPS,

Horizontal, Vertical, Direct
Connected. Write for prices.
Prompt Delivery.



LITTLE GIANT

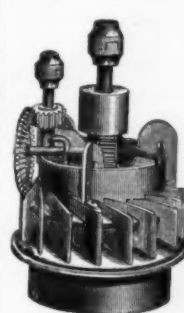
Turbine Water Wheel.



AT FULL GATE ITS POWER EQUALS ANY MADE. GIVES GREATER POWER AT HALF GATE THAN ANY OTHER. GATE IS ALWAYS TIGHT AND NEVER OUT OF ORDER. HAS STEADY, EASY MOVEMENT, AND NOT DIFFICULT TO START AND REGULATE. NOT EASILY CONJESTED BY ANCHOR ICE, LEAVES, STICKS, ETC., AND ANY OBSTRUCTION CAN BE REMOVED WITHOUT SHUTTING WATER OUT OF FLUME OR REMOVING WHEEL FROM CASE. ITS SIMPLE CONSTRUCTION DISPENSES WITH SKILLED MECHANICS TO KEEP IT IN ORDER.

An interesting Booklet which everyone acquainted with water wheels will value, sent on request.

MUNSON BROTHERS CO.,
Broadway, Utica, N. Y.



TURBINES

Adapted to COTTON MILLS and POWER PLANTS

On Horizontal or Vertical Shafts.

Risdon Cylinder and Register Gate Turbines.

Tests in Full Gate 1/2 3/4 Average

Holyoke Flume: 1 .8694 .8472 .8014 .7601 .8195

Alcott's High-Duty Turbine,

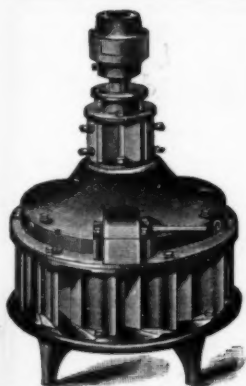
High Efficiency, Easy Working Gate. Simple, Durable.

Taylor Sleeve Gate Turbine,

Largest Power ever obtained from a wheel of same dimensions.

RISDON-ALCOTT TURBINE CO., Sole Mfrs.

Send for Catalogue. MT. HOLLY, NEW JERSEY, U. S. A.



BURNHAM TURBINES

'UPRIGHT AND HORIZONTAL.

Warranted to give the most power
for least amount of water used,
of any wheel on the market.

Norrish, Burnham & Co., Inc.
Glen Rock, Pa.

SEND FOR CATALOGUE.

Glamorgan Pipe & Foundry Company,

Works, Radford, Va.—Lynchburg, Va. Office, LYNCHBURG, VA.

Manufacturers of

Cast Iron Water and Gas Pipe, Special Castings, Flange Pipe
and Flanged Specials.

Gate and Compression Hydrants, Water, Gas and Steam Valves.
General Founders and Machinists.

Sizes
1 1/2 in. to 30 in.
diameter inclusive.



CAST
IRON
PIPE

The Dimmick Pipe Co.

Makers of VALVES and HYDRANTS. Special
Castings of Every Description,
Birmingham, Ala.

New York, 29 Broadway. Philadelphia, 1051 Drexel Bldg.
San Francisco, 51 New Montgomery St. St. Louis, 29 Equitable Bldg.
Pittsburg, 613 Fitzsimons Bldg.

The LUDLOW VALVE MFG. CO.

TROY, N. Y., U. S. A.

Manufacturers of Fire Hydrants and Slide Gate Valves of
All Sizes and for all Pressures and Purposes.

LUDLOW GOODS ARE RELIABLE.

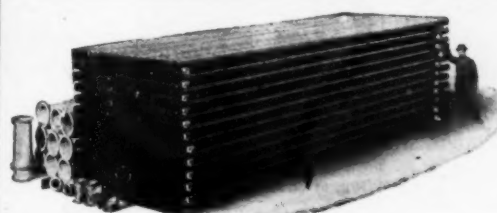
SPECIFY AND INSIST UPON HAVING THEM.

None are Genuine without Our Name, which appears on
every Valve and Hydrant we make and means

STANDARD OF MERIT.

Valves for Extreme High-Pressure Steam, Water, Gas, Oil, Ammonia, etc.,
a Specialty.

SEND FOR CATALOGUE.



TAYLOR'S SPIRAL RIVETED PIPE

for high and low pressure pipe
lines, irrigation, centrifugal
pumps and exhaust steam sys-
tems. Furnished asphalt coat-
ed or galvanized. Send for
catalogue and tell us your needs

AMERICAN SPIRAL
PIPE WORKS

Eastern Office: 26 Cortlandt St., New York, N. Y.

Main Office and Works, CHICAGO.

Southern Towns Inviting Factories.

RAYNE, LA.

A prosperous town drawing support from the three great staples of the South—Cotton, Sugar and Rice. A centre for Poultry and Truck with considerable manufacturing interests, wants more manufactures and offers

Free Sites. Cheap Fuel.
Only 14 Miles From Jennings Oil Field.
Exemption From Taxation. Cash Interest.
Wants Especially a Small COTTON-OIL MILL.

—ADDRESS—

C.W. LYMAN, Secretary Progressive Union, Rayne, Acadia Parish, La.

Free Land With Hydraulic and Electric Power On River and Railroad.

We own 67 acres of fine level land, two miles from Lynchburg, on the banks of the James and on C. & O. R. R. We also own an unlimited amount of power—hydraulic and electric. Hydraulic, our great dam, now completed, will supply 4000 H. P.; our electric plant, now under construction, will give large additional power.

Mr. Manufacturer, we will give you as much of our 67 acres as you need to build your plant on, for the purpose of selling you some of our power at a low rate. We'll help you in every way we can.

Lynchburg is a hustler—she has three lines of railway—unlimited and cheap power—shrewd and far-seeing business men—good street railway facilities—good papers—and public men most liberal to new enterprises. We'll give you our lands and our help if you'll come here.

Lynchburg Traction & Light Co., LYNCHBURG, VA. R. D. APPERSON, Pres.

LOUISIANA'S INVITATION.

Provisions of Article 230 of the Constitution of the State of Louisiana.

"There shall also be exempt from parochial and municipal taxation for a period of ten years from the first day of January, 1900, the capital, machinery and other property employed in mining operations and in the manufacture of textile fabrics, yarns, rope, cordage, leather, shoes, harness, saddlery, hats, clothing, flour, machinery, articles of tin, copper and sheet iron, agricultural implements, and furniture and other articles of wood, marble or stone; soap, stationery, ink and paper, boat building, and fertilizers and chemicals; provided, that not less than five hands are employed in any one factory."

LAFORCHE PROGRESSIVE UNION, Thibodaux, La.

BALTIMORE STEAM PACKET CO.

OLD AND RELIABLE

BAY LINE.

CARRYING U. S. MAIL.

Elegant Steamer Daily, except Sunday, from "BAY LINE" PIERS, 10-13 LIGHT STREET, at 6.30 P. M., for OLD POINT COMFORT, NORFOLK, PORTSMOUTH AND ALL PORTS SOUTH. Connects at Old Point Comfort, Va., with C. & O. R. R. for Richmond. Connects at Portsmouth with Seaboard Air Line, solid train Portsmouth to Atlanta. At Norfolk, connects with Atlantic Coast Line, Norfolk & Carolina, Norfolk & Southern and Norfolk & Western Railroads, and with Old Dominion Line for New Bern and Washington, N. C.

Meals on the European plan. Luxurious Staterooms, Electric Lights, Steam Heat, Berths Free. Reserve staterooms in advance at Bay Line Ticket Office, 103 East Baltimore St.; Albaugh's, 15 N. Charles St., and Seaboard Air Line Office, Continental Trust Bldg. Telephone O. & P. 1435; Maryland, Courtland 485. EMMET BROWN, General Pass. Agent. KEY COMPTON, General Freight Agent. JOHN R. SHERWOOD, V. P. and Gen. Mgr.

Merchants & Miners'

Transportation Company's

STEAMSHIP LINES

For BOSTON and the EAST—Every Monday, Tuesday, Thursday and Saturday at 6 P. M.

For PROVIDENCE and the EAST—Every Wednesday, Friday and Sunday at 6 P. M.

For SAVANNAH and the SOUTH—Every Tuesday, Thursday and Saturday at 6 P. M.

For NEWPORT NEWS and NORFOLK—Daily at 6 P. M.

Accommodations and Cuisine Unequaled. Freight handled with care and dispatch.

C. R. GILLINGHAM, Agent, Long Dock.

W. P. TURNER, G. P. A.

C. R. HOSKINS, G. P. A.

A. D. STUBBS, G. M.

J. C. WHITNEY, 2d V. P. and T. M.

General Offices—214 E. German St., Balto., Md.

CHESAPEAKE STEAMSHIP COMPANY.

"Chesapeake Line."

Elegant passenger steamers AUGUSTA and ATLANTA, for Old Point Comfort and Norfolk, Va. Steamers leave Baltimore daily (except Sunday) at 6.30 P. M.

"York River Line."

Elegant passenger steamers CHARLOTTE and BALTIMORE, for West Point and Richmond, Va. Steamers leave Baltimore daily (except Sunday) at 5 P. M., and arrive West Point 7.30 A. M., and Richmond at 9.15 A. M.

Steamers leave Baltimore from Piers 18 and 19 Light Street Wharf.

Through tickets to all points can be secured, baggage checked and staterooms reserved from the City Ticket Offices, Nos. 109, 120 and 127 E. Baltimore Street or the General Offices, 530 Light Street, Baltimore, Md.

REUBEN FOSTER, General Manager. E. J. CHISM, General Pass. Agent. T. H. McDANNEL, Traveling Passenger Agt.

Dearborn Junior Typewriter Table Cabinet.



Solid Golden Oak, 42 ins. long, 24 ins. deep. Guaranteed to be the most complete Typewriter Table Cabinet ever sold at the price. Attachment for holding note book effective and invaluable. Shipped to responsible parties on approval for \$12.00, freight prepaid east of the Rocky Mountains. What more can we offer? Write for catalogue of Dearborn Typewriter Cabinets.

DEARBORN DESK COMPANY,

MFRS. OF TYPEWRITER CABINETS EXCLUSIVELY.

1921 First Ave., Birmingham, Ala.

200 Monroe Street, Chicago, Ill.

BOSTON & MAINE RAILROAD.

Lowest Rates.

Fast Train Service

BETWEEN

Boston and Chicago

St. Louis, St. Paul, Minneapolis and all points West, Northwest, Southwest.

Pullman Parlor or Sleeping Cars on All Through Trains.

For tickets and information apply at any principal ticket office of the Company.

D. J. FLANDERS,

Gen'l Pass. & Tkt. Agt., BOSTON.

Rubber Stamps, Seals, Stock Certificates and Bonds,

Manufactured by

NATIONAL SEAL WORKS

P. O. Box 60, RICHMOND, VA.

"Big Four"

The

World's Fair Route

From The

Leading Cities of

OHIO, INDIANA

and ILLINOIS

To

ST. LOUIS

WRITE FOR FOLDERS.

Warren J. Lynch, Gen'l Pass. Agt.
W. P. Deppe, Asst Gen'l P. A.

CINCINNATI, OHIO.

Stencils, Checks, Brass and Rubber Stamps, and Stock Certificates

Manufactured by

JOHN G. HULLETT & CO.

124 S. Howard St., BALTIMORE, MD.

WRITE FOR PRICES.

Railroads Inviting Factories.

SOUTHERN MILL FOR SALE.

Price \$3,000.00

This is a small knitting mill, located in one of the best towns in the Carolinas. Death of Manager and consequent disagreements among stockholders has thrown it on the market for one tenth its actual value. The plant consists of

20 Excelsior 160 needle machines,
1 Looper, 14 point,
1 Ribber, double feed,
2 Singer Sewing Machines,
1 Dryer, 200 dozen capacity,
1 Emery Wheel and Stand,

shafting, belting, tables, stamping outfit, etc., all installed in nice building, with engine, boiler and dye room attached, ten acres of ground and three tenant houses. A splendid opportunity for an experienced man with small capital to start in business for himself. One of the stockholders will take half interest. For further information address,

J. W. WHITE,

General Industrial Agent, Portsmouth, Va.
SEABOARD AIR LINE RAILWAY.

Come to West Virginia.

Why? It has more and a greater variety of undeveloped resources close to Eastern and Western markets than any other State. The WEST VIRGINIA CENTRAL & PITTSBURGH RAILWAY penetrates the heart of the virgin timber forests and coal deposits. Cheap fuel, cheap raw material and unsurpassed railway facilities make that territory most desirable for manufacturing industries. For information in regard to timber and coal lands and manufacturing sites address

HOWARD SUTHERLAND,

Gen'l Land Agent, ELKINS, W. VA.

Bank and Office Fixtures.

The most complete assortment in the country.

Regular goods always in stock; anything special made to order.

Up-to-date plant equipped in the most modern manner with latest improved machinery, operated by experienced mechanics and supported by a large capital.

The result is but natural: You get what you want, and at a price that none can beat and only few can equal.

"Buy from the Makers."

M. L. HIMMEL & SON,

Baltimore, Md.

Catalogue No. a



YOUR ATTENTION, PLEASE!

Virginia

offers a number of fine openings in the line of

**MINING,
MANUFACTURING
and
FARMING.**

Along the lines of the

Norfolk and Western Railway

are hundreds of towns extending you a hearty welcome.

Address, for pamphlets and information,
W. B. BEVILL, **PAUL SCHERER,**
G. P. A. **Agt. Lands & Industries.**
ROANOKE, VA.



The Most Direct Route

FROM

Southern Points

TO

**TOLEDO
DETROIT
INDIANAPOLIS
CHICAGO**

and Points in Ohio, Indiana, Illinois
and the Northwest
IS VIA

C. H. & D. RY.

**Speed
Safety
Luxury**

For full information regarding time of
Trains, Rates, etc., address,
D. G. EDWARDS,
82 Carew Building, CINCINNATI, O.

Splendid Opportunities For Profitable Investments.

MANUFACTURERS

before locating elsewhere should examine the

Excellent Locations for Factories of All Kinds

existing along the

Southern Railway and Mobile & Ohio Railroad.

Abundance of raw material, cheap fuel, plenty of good labor and unsurpassed transportation facilities tend to make the territory traversed by these lines superior for the successful investment of capital in

**Textile Mills, Lumber Mills,
Furniture Factories,
Iron and Steel Works, Etc.**

For further and detailed information address,

M. V. RICHARDS,

Washington, D. C.

Land and Industrial Agent:

**SOUTHERN RAILWAY and
MOBILE & OHIO RAILROAD.**

OPPORTUNITIES

for the location of industries are plentiful in the sections of country traversed by the various lines of the St. Louis & San Francisco Railroad, and the resources are so diversified as to offer excellent chances for many kinds of industries.

Cotton Mills

are especially needed throughout the Southwest, as the very finest quality of long staple cotton is raised, labor conditions are of the best and fuel in most sections is cheap. Excellent inducements, such as free sites, bonuses, subscriptions to stock, etc., will also be given by a number of cities and towns along the



to secure cotton mills, knitting mills and all kinds of textile industries.

Send for copy of publication entitled "Opportunities," giving detailed information about the towns and cities traversed by the Frisco System, as well as openings for all classes of industries.

M. SCHULTER, Industrial Commissioner,

Commercial Building.

ST. LOUIS, MO.

SHELBY

Useful Light

LAMPS

For All Purposes.

**The Best.
More Light**

Where You Want
It The Most.

S
H
E
L
B
Y



S
H
E
L
B
Y

Do You Know

A 16 C. P.
SHELBY LAMP
will give as much
USEFUL LIGHT
as a 32 C. P. Oval Anchored
Lamp?

IT WILL.

Do You Know

A SHELBY LAMP will
give from 50 to 100 per
cent. MORE LIGHT in
USEFUL DIRECTIONS
than other makes of
lamps using same amount
of current?

IT WILL.

If you will send us an order

We Will

guarantee results, because
we know from experience

You Will

be satisfied.

Branch Offices in all Large Cities.

**The
Shelby Electric
Company,**

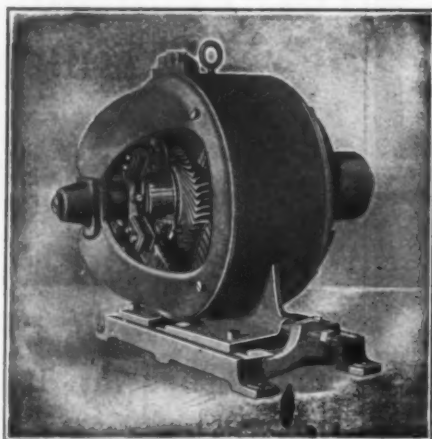
Main Office and Factories:

100 Seco St.

SHELBY, OHIO.

"Ours is the Light of the World."

KENTUCKY ELECTRICAL CO., Incorporated,
MANUFACTURERS OF
Incandescent Lamps, Motors and Dynamos.
OWENSBORO, KY.



Our goods are guaranteed, our shipments prompt. We do not belong to the combine.
Write for prices.

FLORIDA ELECTRIC CO.
Electrical and General Engineers.
JACKSONVILLE, FLA.

Sales Agents for

De Laval Steam Turbines.
Curran's Electric Elevators.

A complete line of Motors, Dynamos
and Electrical Supplies of all kinds
constantly on hand.

BEFORE CONTRACTING FOR
INCANDESCENT LAMPS
GET THE **STERLING SPECIAL LITERATURE.**
STERLING ELECTRICAL MFG. CO. - WARREN, OHIO.

Nickel Plating Outfits.
POLISHING MACHINERY.
CHEMICALS.
DYNAMOS.

THE HANSON & VAN WINKLE CO.
CHICAGO NEWARK, N. J.
ADDRESS DEPARTMENT W

**Makes Drop Lights
More Useful**

The Pacific Cord Adjuster

for adjusting the cord of drop
lights. Particularly adapted to use
over machines and desks where the
cord must be adjusted to meet cer-
tain conditions. The balance can
be easily changed for shades of
different weights.

We make 35 Styles of Desk and
Office Lamps.

Send for Catalogue.

PACIFIC ELECTRIC CO.
May Ave., La Crosse, Wis.



**The Alleghany Pin & Bracket
Company,**
COVINGTON, VA.

Manufacturers of

**INSULATOR PINS AND
BRACKETS.**

The largest output of any factory in America.
Write for quotations.

General Electric Company,

Principal Office:

SCHENECTADY, N. Y.

Sales Offices in all Large Cities of the U. S.

WHEN IN NEED OF

Insulator Pins, Red Cedar or Chestnut
Telephone Poles, or Red Cedar
of Any Description,

— do not fail to correspond with —

HOUSTON & LIGGETT, Lewisburg, Tenn.

SECOND HAND

Printing Presses, Paper Cutters.

The Cheapest Place to Buy

SPACES and QUADS.

Write for Prices and Discounts.

SPENCER & HALL,

Type Founders and Electrotypers,
BALTIMORE, MD.



W. H. JENKS,
Electrical Contractor,
AND DEALER IN
ELECTRICAL SUPPLIES OF EVERY
DESCRIPTION.
617 E. Main Street, Richmond, Va.



**HIGH-CLASS
DYNAMOS**

Made Especially
Strong For
Heavy, Hard Service.

**JUST THE
THING FOR
FACTORIES.**

Write us for
Bulletins.

**EWING-MERKLE
ELECTRIC CO.**
ST. LOUIS.

NO BUTTS

but the best
OF BUTTS
in our

Juniper Poles



Send your orders in to us
and get Quick Deliveries.

**STANDARD POLE & TIE
COMPANY,**

506 Venezuela Building,
NEW YORK.

**GAS, ELECTRIC
AND COMBINATION**

**Chandelier
Manufacturers,**

CATALOGUE ON
APPLICATION.

**CHANDELIERS FOR FINE
RESIDENCES AND LARGE
BUILDINGS**

OUR SPECIALTY.

ORIGINAL DESIGNS FURNISHED.

Chas. Polachek & Bro. Co.
185 and 187 3d Street,
MILWAUKEE, WIS.





S

2S



TTIE

,



ED.

Co.



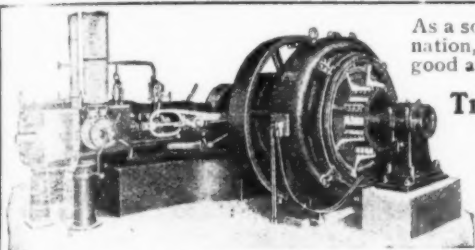
En

Wh
of H
FIVE

J

S





As a source of power and illumination, there is nothing quite so good as a

Triumph Generator

which is by all odds a most economical investment for your shop.

More fully described in Bulletin "MR 201." Ask for a copy.

200 K. W. Direct Connected Generator.

Triumph Electric Company, Cincinnati, Ohio, U. S. A.

The S. B. Alexander, Jr., Co. Engineers and Manufacturers

CHARLOTTE, N. C.

Wholesale and Retail Electrical Supply Dealers. Largest stock of Electrical Supplies carried south of New York. TWENTY-FIVE thousand Sawyer-Man Lamps carried in stock.

Textile, Engineers', Machinists' and Electrical Supplies.

John Simmons Co.



104-110 Centre Street,
New York City.



IRON PIPE FITTINGS AND VALVES
—FOR—

STEAM, GAS, OIL, WATER

AND ELECTRICAL ENGINEERING.

PIPE CUTTING AND MACHINE SHOPS
FOUNDRY

BENDING, COIL AND BLACKSMITH SHOPS.

The Cushing Company

SUCCESSOR TO

J. W. BOND CO. AND CUSHING & CO.
Established 1848 AND Established 1810

IS PREPARED TO FURNISH

Office, Bank and School Supplies OF EVERY DESCRIPTION

We can supply you with Desks, Furniture, Blank Books, Stationery, Printing, Lithographing, Engraving and everything you use for office work.

THE LARGEST STOCK OF BOOKS IN THE SOUTH

THE CUSHING COMPANY

14 W. Baltimore St.

Baltimore, Md.

Supplies.

FOR ELECTRIC
LIGHTING,
BELL WORK,
RAILWAYS,
TELEPHONE,
TELEGRAPH,
FIRE ALARM,
ELECTRIC PLATING,
NOVELTIES.

Construction.

WE WILL FURNISH
YOUR MILL,
SHOP OR FACTORY
WITH A
COMPLETE
ELECTRICAL
EQUIPMENT AND
GUARANTEE
OUR WORK.

Railways.

WE ARE
ELECTRICAL
ENGINEERS, AND
AS SUCH FINANCE
THE BUILDING OF
AND ALSO EQUIP
NEW
ELECTRIC
RAILWAYS.

We Keep On Hand a Full and Complete Line of

Electric Supplies.

"Everything Electric"

Standard Electric Co.

Main Office, NORFOLK, VA.

BRANCH OFFICE,
CHARLOTTE, N. C.

"ALL THINGS ELECTRICAL"

Largest Stock of General Supplies in South.

—Agents for—

Duncan Meter Co., Sawyer Man Inc. Lamp Co., Nernst Lamp Co.
Westinghouse Elec. & Mfg. Co. Deveau Telephone Co.

Write for our catalogue and prices.

ELECTRICAL MATERIAL CO., { BALTIMORE, MARYLAND.

PREMIER LAMPS Will Help You to Save 20%

Prompt Shipment from Stock; delivery paid.

PIEDMONT ELECTRIC COMPANY, Electrical Material.

ASHEVILLE, NORTH CAROLINA.

FEED LUMP CARBIDE YIELDING MORE AND BETTER GAS	"RUN LIKE A CLOCK" DAVIS	GAS GENERATORS MAKE ATTRACTIVE HOMES LIGHT STORES BRIGHTLY INCREASE FACTORY OUTPUT LIGHT TOWNS ECONOMICALLY MAKES BEST LIGHT, SAVE MONEY 4 th YEAR, USED IN 33 STATES	DO NOT CLOG BURNERS SAFEST PLANTS MADE
		INFORM YOURSELF SEND FOR FREE CATALOG	
		ACETYLENE CO. ELKHART, IND.	



THE BENBOW

Adjustable Swinging Telephone Bracket.

Fits any style of 'Phone, Desk, Wall or Partition.
Endorsed and used by Telephone Companies.

For Sale by the Trade.

Write for Price List.

Agents Wanted.

THE BENBOW COMPANY,

MANUFACTURERS.

14 South Broad St.,

PHILADELPHIA, PA.



Motors.

COMMERCIAL ELECTRIC COMPANY,
INDIANAPOLIS, IND.

Dynamos.



**ENGINES, BOILERS, SAW MILLS,
GINNING MACHINERY**
And Kindred Lines Generally.
W. H. GIBBS & CO.
COLUMBIA, S. C.

Jenkins Bros.' Pump Valves

For mining and high pressure service our No. 18 Pump Valves are especially adapted; they are in use under pressures as high as 450 pounds, and giving entire satisfaction. We also manufacture pump valves from various other compounds, and can furnish valves adapted for all classes of work. Our guarantee goes with all valves bearing our Trade-Mark.

JENKINS BROS., New York, Boston, Philadelphia, Chicago.

**THE ALLINGTON & CURTIS
DUST & SHAVINGS SYSTEM IS**
YOUR PLANT'S PROTECTOR. SEE THE CATALOGUE SHOWS WHY.
FREE ESTIMATES BY EXPERTS

**PITLESS
WAGON
AND STOCK
SCALES.**
Complete Scale above the Ground.
Steel Joist. Steel Frame.
Frame 9 inches High.
McDonald Bros., Box 515, Pleasant Hill, Mo.

THE BEST

**EXHAUST FANS
& BLOW PIPING**

**FURNACE
FEEDERS**

"MORSE" CYCLONE DUST COLLECTORS
MFD. BY THE ALLINGTON & CURTIS MFG CO.
SAGINAW, MICH.

Black Diamond File Works

Established 1863.

Incorporated 1895.

Twelve
Medals
Awarded at
International
Expositions.



Special
Prize
Gold
Medal
Atlanta, 1895.

Our Goods are on Sale in every leading Hardware Store
in the United States and Canada.

G. & H. BARNETT CO., Philadelphia, Pa.

To Manufacturers and Capitalists

Contemplating the Establishment of Industrial Enterprises

Attention is called to the exceptionally favorable location of
NEWPORT NEWS, VA.,
on Hampton Roads, fifteen miles from the Sea. Deep water,
railway and sea transportation facilities unrivalled. Climate
salubrious. Apply to

C. B. ORCUTT, President.

OLD DOMINION LAND COMPANY
1 BROADWAY, NEW YORK

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe,

Fire Brick, Milled Clay Fine Pipe and Chimney
Tops, Crns, &c. Correspondence Solicited.



"The Standard" Scales

FOR
Cottonseed Oil Mills, Cotton Gins, Railroads, Mines, Mills, Warehouses AND ALL
Established for the U. S. Government, Leading Railroads and Manufacturers.
THE STANDARD SCALE & SUPPLY CO., Limited, Manufacturers,
PITTSBURGH, PA.



THE BALTIMORE SHIPBUILDING AND DRY DOCK CO.

Shipbuilders in Iron and Steel. All Kinds of Marine Repairs. Dry-Docking.
ENGINEERS AND MACHINISTS.

DIXON

A moderate force will
separate a joint which
has been made with Dix-
on Pipe Joint Com-
pound. For full list see
DIXON CATALOGUE
New York, N. Y.

WE WANT EVERY STEAM USER TO KNOW

That we not only make the



Automatic Injector

which is everywhere acknowledged the stand-
ard Boiler Feeder, but also a complete line of
Oil and Grease Cups, Automatic Water
Gages, Gage Cocks, Etc.

PENBERTHY INJECTOR CO.
Detroit, Mich.

Largest Injector Manufacturers in the World.

GRINNELL SPRINKLERS.

**General Fire Extinguisher
Company,**

Executive Offices: Providence, R. I.

At Our New
Charlotte Plant,

CHARLOTTE, N. C.

We carry the largest and best stock in the South of
**Pipe, Fittings, Valves,
Steam and Water Supplies**

Pipe from 1/2 inch to 12 inches cut to measure.
Orders executed promptly at lowest prices.

J. W. CONWAY,

Manager Southern Department.

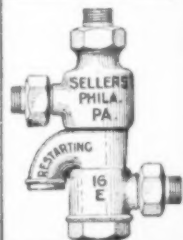
CONSOLIDATED AIR LIFT CO.

Pneumatic Engineers,
WASHINGTON, D. C.

Our Air Systems of Pumping will increase your
well water supply 25% to 40%. Guaranteed.

OSGOOD'S 1903-4 Catalogue, just out, is A
TRADE MAKER and a TRADE WINNER. You
show a man our catalogue; he will forget some
things and want an Osgood QUICK. Our SILENT
SALESMAN is a beautifully illustrated and artistic
book, gotten up regardless of expense, to sell
OSGOOD SCALES. No live dealer can afford to be
without one. With it and our discount sheet you
can capture the scale trade. Write
OSGOOD SCALE CO., Binghamton, N. Y.

Sellers' Restarting Injector



A strictly first
class machine at
moderate cost.

Perfectly auto-
matic, has wide
range of capaci-
ties, and raises
water promptly
with hot or cold
pipes.

Very simple,
has few parts
and is easily
repaired.

All parts interchangeable, made of
the best bronze, and the workman-
ship is perfect. Send for special
catalogue descriptive of this Injector.

JENKINS BROTHERS, Selling Agents
NEW YORK, BOSTON, PHILA, CHICAGO

York Safe & Lock Co.
MANUFACTURERS OF

Safes and Vaults

York, Pa. Baltimore, Md.

Reed's Standard Pipe Wrenches



are time savers. A man with a Reed Standard pipe wrench will often screw a
pipe into place while another man equally as good is adjusting to place a chain
wrench, or one that requires adjustment. This wrench adjusts itself instantly
to all sizes of pipe within its capacity, gripping it firmly with the slightest
downward pressure on the handle. It never slips. The harder you press down
the tighter it grips, while the slightest upward pressure on the handle instantly
releases it. The action of the jaws is a perfect ratchet, each grip being firm
and secure. Send for our catalogue "R" of Plumbers' and Steamfitters' Tools.

REED MANUFACTURING CO., ERIE, PA.

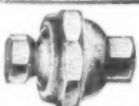
"Columbian" Cordage.



The Test of time has made
a high reputation for it

COLUMBIAN CORDAGE CO.

Auburn, N. Y.



MORAN FLEXIBLE JOINT

Used for all purposes requiring a Flexible Conveyor of Steam,
Air or Liquids. Made in all sizes.

**MORAN FLEXIBLE JOINT CO. (Inc.) 152 THIRD STREET,
LOUISVILLE, K. Y.**